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THE PHI DELTA KAPPAN

VOL. XXIV DECEMBER, 1941 No. 4

Editorial Comment

DISSEMINATION OF RESEARCH

THE CONCEPT of research is, as all Phi Delta Kappans know, the first of the triad of great ideals for which the fraternity stands. It is neither by chance nor coincidence that the ideal of research is the first of the three. The professionalization of educational leadership and service can be achieved only through the stimulation and sponsorship of research in the fields of professional endeavor. There may still be different opinions as to just where the responsibility of the fraternity begins or ends in sponsoring or subsidizing individual projects or studies. All will agree, however, in the general thought that the fraternity should interest itself in research activities. We are committed to the position of exerting every possible influence toward the refinement of research techniques and increase in the use of the results of research studies. The exertion of such influence comes within the scope of the responsibility of this organization.

Again, the question of the responsibility of the fraternity for the dissemination of research is in no sense debatable. The fraternity believes in no type of closeted research for ulterior or selfish motives, but rather in the fullest dissemination of the findings of research for the benefit of the greatest number of the membership of the profession. The history of the fraternity is not without evidences of effort along this line. Frequent appearance of reports of research in the issues of THE PHI DELTA KAPPAN, the sponsorship of *Education Abstracts*, as well as the reports of research studies and listings of bibliographies in chapter News Letters bear witness to this fact. The subsidy by the fraternity of the preparation and publication of the *Dictionary of Education* is further evidence of the effort and interest of the fraternity in professional research.

As commendable as the above efforts have been in the past and may be at the present every member of the fraternity is sensitive to the need for extending the services of the fraternity to the greatest possible extent in the field of research. By virtue of the size of the membership and the range of interests represented by them there is particular need for consideration of the means of dissemination of research that are or may be used. The national organization as well as district and chapter units should find a prominent place in the total picture of dissemination of research as it exists today. A review of the agencies that are now making contributions along this line and the emphases involved may give perspective for enlarged scope and effort. The constantly increasing amount of research in education points to the necessity of clarifying the results and implementation of means of dissemination of the same.

One recognizes at the outset that the benefits of research in any field depend upon the ultimate value of the results in changing procedures for improvement in the processes of instruction and administration. The value can be proven only by the extent of use, which in turn is dependent upon the extent of the dissemination of the findings of the research. The concern for the reliability and the validity of a research activity must be matched by equal effort in the dissemination of the results of such studies so that they shall influence teaching, curriculum-making and the preparation of materials for instruction, or some other field of educational activity. Many research agencies have promoted and subsidized research but have been content with reporting the results as contributions to the general field to which the findings applied and have spent little effort to see that the findings have been used through application to educational practices.

In more recent years a large number of professional periodical publications have appeared, the majority of which have not yet attained the twentieth volume. A fair proportion of the con-

tent of these publications consists of reports of research studies of more or less limited nature. In addition, many organizations publish and make available for those seeking such materials, series of bulletins and abstracts in limited quantities. Frequently state departments of education, city and county school systems, and foundations publish and distribute in restricted numbers the findings of studies that seem applicable to special interests. Such efforts have, in the past, lacked sustained and systematic activity and have been too restricted in scope to have realized the greatest benefits from their endeavors.

There is a definite need for some agency or agencies to assume the responsibility for the dissemination and implementation of the findings of research on a large scale. Such activity would presuppose the determination of the general classifications into which the research findings would fall and the preparation of information in suitable form to appeal to the audience to whom the material is most applicable. One cannot presuppose that reports of research that have been prepared for specialists in the field of the psychology of learning will in that same form be attractive (or intelligible) to lay groups, though in a different form the same material would appeal to them just as much as to the specialists.

The above statements involve a number of specific questions that must be faced squarely if the dissemination of research is to be made to approximate its fullest service. One major question is the division of the educational program into classifications so that research findings may be organized and interpreted according to their relevancy to given phases of the total field of education. Another issue involves the determination of all of the agencies through which research is now being stimulated and the development of some plan of coordination of effort toward dissemination on the most serviceable basis.

The cooperation of such varied organized interests as research commissions, national and state educational committees, and the research division of the National Education Association, as well as state and city research bureaus is an essential element in the establishment of a broader program of dissemination of research. Other issues, such as the determination of evaluative techniques for the selection and organization of research findings, would lead ultimately to an emphasis upon the fields needing research and the techniques that lend themselves for service in such fields.

Another problem that would ultimately appear is the dissemination of research on an international basis. Whatever results the present maelstrom may have, we are constantly recognizing the necessity of international cooperation and stimulation in the future. Some efforts have been made in the past to promote such a program on an international basis, notably the work of the World Federation of Educational Associations, The International Institute at Columbia University, the International Bureau of Education under the J. J. Rousseau Institute of Geneva, Switzerland, and the New Education Fellowship.

Finally, the problem of reorganization of the findings of research and their interpretation would constitute, at the same time, an opportunity and a serious task. The translation of the results of research into suggestive procedures and techniques for the guidance of the person in the field of educational administration, supervision or instruction would climax the activities of such a program of dissemination of research such as is suggested above.

The point of view expressed in no sense implies lack of appreciation of the many lists of annotated references appearing in publications by educational organizations, in their house organs, yearbooks or in occasional bulletins. Annotations of research studies limited to fifty or one hundred words do not give to the interested person a sufficient amount of information on which to base improved activities or changed procedures in teaching or administration. The fact is too well known for debate that the majority of the men and women in educational service cannot secure full copies of more than a very small proportion of the research mentioned in a typical bibliography on any topic whatever.

More complete presentation of the results of research within given fields would bring to the responsible individuals a balanced body of content on the basis of which refined action might be premised. The acceptance of such a responsibility on the part of any professional organization would constitute a practical approach to a situation at present greatly confused.—ULLIN W. LEAVELL, *National Secretary, Phi Delta Kappa.*

EDUCATIONAL RESEARCH

UNTIL A FEW decades ago educational practice was largely the result of somebody's opinion. To be sure it was often dignified as educational philosophy but it was nevertheless merely someone's opinion. In other words there was no organized attempt to test the results of instruction or to gather extensive data on the basis of which a conclusion on an educational problem might be reached.

Then came the modern era of scientific development, particularly the applications of scientific discoveries to engineering, agriculture, and medicine. These movements provided much basic information of interest to the discerning educator and deeply impressed the educational profession with the possibility of solving problems through the scientific approach. Indeed there is still a kind of widespread naive faith in facts and figures with respect to educational matters which constantly tends to overlook the well known fact that the reactions of individuals are not constant and therefore are not measurable in the same absolute terms characteristic of elements in the physical sciences.

Nevertheless there has now been developed through research a great body of information which is immensely helpful to the thoughtful teacher and educational administrator. One of our chief problems in education is how best to encourage and organize further research over the long future.

It would be easy to make a rather long catalog of the difficulties which confront educational research. For example, in a field which is so new, it should not be surprising that we have no definition of terms which is universally acceptable. Unless there can be an agreement on definitions we cannot understand clearly one another's pronouncements and research findings. Fortunately the first comprehensive dictionary of educational terms, under the auspices of Phi Delta Kappa, is now nearing completion.

Likewise, under the editorship of Professor Walter S. Monroe, a very useful compendium of knowledge as to the progress of research in the various aspects of education has come from the press within the year. Such an encyclopedia of educational research has long been needed.

Also, personnel competent to carry on fundamental educational research and to train others in the field has been none too plentiful. Not many biologists, psychologists, and political scientists, for example, have been interested in the applications of their fields of interest to the problems of educational practice. As a result education has been compelled to develop as best it can a considerable group of researchers who are often not well grounded in the basic sciences and who are generally so busy with teaching or administrative duties as to interfere seriously with any research work which they may be attempting.

Under these circumstances it is quite natural that a large proportion of the research work in education has been of the survey type. A problem arises in school finance, the teaching of French, or health education. Someone starts in religiously to comb the literature in the field and ends up by sending out a questionnaire to a large number of busy people. Out of a wealth of information the most common practices are carefully compiled and conclusions are drawn as to what is the proper solution of the problem.

I do not wish to imply that this form of research in the social sciences, including education, is not useful. But I do wish to point out that it is of a very different order from that of the indivdual who plans and carries out a careful experiment as to the effects of various types of school lighting on the eyes of school children or who sets up a program including a series of measures to evaluate the effectiveness of the program of teaching English as a foreign language to Spanish-speaking children in Puerto Rico and the Southwest. This type of research is similar to that of the physical scientist who formulates a hypothesis, plans an experiment to test it, and measures his results. As in the case of the physical scientist it requires controlled conditions, time, and often extensive facilities. But it has permanent values. We are in great need of more researches of an experimental character in the field of education.

To accomplish such a program it will of course be necessary to break through a very baffling circle of difficulties. More men of the highest competence capable of directing such programs must be found and freed for this purpose. More facilities, including experimental schools, must be made available. There must be a system of selecting and providing fellowships for promising students in education comparable to that which now obtains in the physical sciences and the humanities. Each

field of research should be canvassed carefully to determine next studies which ought to be undertaken. Finally there should be made available to the United States Office of Education several million dollars with which to carry on a cooperative and coordinated program of research with selected universities and school systems throughout the country.—GEORGE F. ZOOK, *President, American Council on Education, Washington, D.C.*

NEED FOR CRITICAL RESEARCH

THE TWENTIETH CENTURY has been notable for its contributions to educational research. In fact, the notion of a science of education got its first sure foothold in the early part of the twentieth century, and since that time we have devoted ourselves enthusiastically and continuously to the promotion and dissemination of research in this field. It might appear, therefore, that the discussion of any such topic as this which I have undertaken is anachronistic—that it urges what is already a *fait accompli.* However, the need for critical research today remains real and the topic timely, in part for the very reason that there are these initial years of success behind us. We have developed a craftsmanship in educational research that has made our scholars adhere rigidly and habitually to the best techniques so far developed for use in scientific investigations; and from this new vantage point, we may scan anew the field of education and its research needs—needs which may now be more hopefully faced than ever before.

The problems of research in these years of the recent past too often have been limited to investigations concerning the existing program of education—problems in School Administration, Methods, Curriculum, Measurement, as they have related themselves to the conventional school program and the conventional outcomes of instruction. This job of research has been done well and with the momentum gained we may expect continued progress. But sometimes these topics of research have lagged behind the problem situations and the practical compulsions faced by those out in educational service, and, consequently, at some points, such research has offered a minimum of guidance to these groups. Research must be to those in the field what a reliable scout is to a main body of pioneers. It must provide the directive influence for the adjustments and movement that a changing society is forcing. Research must rest on premises far bolder than it has so far if it dares presume it will be a guide. We must have research based on the assumption that there may be different aims and purposes, different techniques and practices, wholly different schemes, even, that are more valid and effective in improving our society than the old have been. The social frame of reference into which educational research is to fit needs to be enlarged and understood by every scholar under the stimulus of intelligent imagination. A mind as free in its speculative range as the veritable philosopher's, one that can think of possible changes in the purposes and techniques of education as calmly as it can think of any fact of change will possess the insight to produce the critical and creative research of tomorrow's effort, when and if it also retains the scientific discipline of today's effort.

In the midst of this war, and in the devotion of our supreme efforts to the winning of the war, we are likely to forget that the most critical problem facing educators is not the war, but the reconstruction necessary to save our democracy after the war. Educational research should play a truly vital part in this program of adjustment, for out of educational research should come educational reconstruction, and out of educational reconstruction should come social reconstruction. Research will be valuable to the extent that our directors of research understand the need for investigations into the nature of society and social change, to the extent that they understand the need for investigations, audacious and ingenious, into the possibilities of new educational organization for achieving social control of a type superior to that we have had. If we look into our history, we can see that our democracy has been imperiled at various points and times because of prejudices, stereotypes, and attitudes handed down from past generations, completely out of harmony with the actualities of life at a particular time. Similarly, our educational history will reveal that we have done next to nothing in our research endeavors and only a little more in any empirical educational program by way of trying to discover a systematic way of counteracting such a ruinous heritage. We may count on it that the heritage of hate and prejudice, cynicism and despair that is bequeathed to the post-war genera-

tion will be more vicious than ever before, more dangerous to our democracy, if steps are not taken to cope with it—steps that have not before been taken in education in any systematic way or with any impressive results.

Will we be provided with the critical research that will guide us, or will educators in actual service flounder as they feel the social pressure for change? Will they look to educational research for guidance and find research that answers only unimaginative, highly refined questions within the framework of the *status quo?* If they do so look and if they are so failed, it will be no simple failure of one branch of education by another. It may well be the failure of education to save society.

Is there a critical need for critical research?—E. GEORGE PAYNE, *Dean, School of Education, New York University, New York.*

IN SCHOOL ADMINISTRATION

RESEARCH conducted during the past forty years has modified practice in every major aspect of school administration. Any proposed modification of current practice in the organization of schools, in the provision of opportunities suited to the needs and capacities of individual children, youths, or adults, in the financing of the program, or the improvement of personnel, is today subject to careful scrutiny by the competent administrator in the light of the results of researches now available. The scientific approach to the solution of the problems of administration must be more generally accepted if the highest degree of efficiency is to be secured. In no area may we rest satisfied with the work already done.

It may be worth while to suggest broad fields in which administrative research should be carried forward in the years which lie immediately ahead. We know too little concerning the influence of governmental control at all levels—local, state, and national—upon the efficiency of schools. There is need to appraise the methods provided for interpreting the desire of the people for education. The most casual observer must know that Constitutional provisions and legislative enactments in many cases now limit the development of an efficient school system. We have lacked the convincing proof which will certainly bring to pass the necessary modifications in governmental structure.

Much progress has been made, particularly during the past twenty years, in the financing of the educational program. Significant inquiries have been made concerning the economic results of education. These studies must be extended and refined, however, in order that those responsible for presenting the program to the public may have a sound basis upon which to defend the financial programs which they present for adoption. It will be possible, through reports of research studies and their popularization, to establish in the minds of the people the need for more generous support of education. It will just as certainly be possible to convince the public that the investment will bring large returns.

Research studies which have been completed have thrown much light on the problems of organization of school systems, of individual schools, and of classes. Much still remains to be done on the problem of determining the size of class and of school which will best insure the achievement of the purposes of education. Problems related to the homogeneous grouping of pupils need further investigation. The questions of placing children in specialized curricula and the basis upon which selection of courses can best be made require further study.

Nowhere is there greater need for research than in the field of the professional personnel of our schools. One of the most fundamental problems concerns the selection of those who are to be given professional education. The placement of individuals at various levels in the school system and their assignment to particular duties should be based upon a more complete knowledge of the results which we may hope to secure by such placement than is now possible. The methods to be employed in stimulating the professional growth of teachers in service are of surpassing importance. Further light is needed on problems of teacher tenure, salaries, and retirement provisions. Many persons enter the profession with high enthusiasm, only to find that the administrative and supervisory service provided fails to stimulate their growth or to reward them adequately.

Administrative research must consider more intensively the relationships of the school to the community. All too frequently schools serve the children enrolled in them without any adequate understanding of the family life or the general social

environment out of which these children come and to which they return. We need a very much surer basis for integrating the life and possible contribution of citizens in the community with the professional service provided by schools. If the schools are to serve the purposes of democracy, ways must be discovered whereby the school personnel may contribute more significantly to the welfare of the community.

We still spend hundreds of millions of dollars for buildings and equipment. In many cases these facilities are ill adapted to the program of education which the school authorities are seeking to develop. Studies dealing with schoolhouse planning and with the economical use of the money provided for housing, for books, and for equipment, are very much needed. In like manner, present practices in the maintenance and operation of plant, the management of the fiscal affairs of the school system, and the like, should be appraised.

We have a right to be proud of the achievements of our profession in developing the scientific attack upon the problems of administration, but we may not rest satisfied with the results accomplished. On the basis of a sound philosophy of education and a clear understanding of the purposes to be realized, we need more certain knowledge with regard to the way in which we may achieve the results we desire.—GEORGE D. STRAYER, *Professor of Education and Director, Division of Organization and Administration of Education; Director, Division of Field Studies, Institute of Educational Research, Teachers College, Columbia University, New York.*

THIS SPECIAL issue of THE PHI DELTA KAPPAN is published at the request and with the cooperation of the national committee on research, consisting of the national secretary, Ullin W. Leavell, as chairman, and the seven district representatives of Phi Delta Kappa. A year ago, when the district conferences were asked to choose one of several propositions as the activity program for the research committee, they were unanimous in asking for a research issue of THE PHI DELTA KAPPAN.

THIS ISSUE

The editor and the committee wish to express their appreciation to all who have assisted in the preparation of the articles and bibliographies herein contained.—P. M. C.

SOON AFTER these words reach the membership of Phi Delta Kappa, the Nineteenth National Council will be in session in Chicago to consider ways and means of perpetuating and making effective its ideals of research, service, and leadership—the guiding principles which are enjoined upon us individually and collectively. And in so doing it will evaluate results to date. When the entries are all made and the achievements all rated and counted, the pathetic impotence of it all in a world gone mad will be painfully evident. However important such things might seem to be in normal times, just now they seem to have little significance.

OUR IDEALS

Yet our research, our service, and our leadership are needed now as never before. After the havoc of war comes the reconstruction in which education will of necessity have a large part. It is not too early to plan our research and leadership and service in terms of future needs. We need to take stock of the values inherent in our American system of public education and, quite as frankly, of its shortcomings. We may as well realize that readjustments are inevitable and that the pattern of the so-called system is due for major alterations. Education for effective citizenship in a democracy is the goal in public education, but we have been so busy making better professional workers, business men, farmers, artisans, and college students as a goal that we have had but little time for making better citizens as participating members of a democratic form of government. If we sincerely believe in the democratic form of government—and we do—and if we believe equally sincerely that an informed citizenry is vital in a democracy—and we do—then the pattern of education must be changed to insure a product adequately prepared to do its part. That is the major function of public education at public expense, other objectives relative to personal values being subsidiary.

Now—today and tomorrow—we must carry on. As educators, we have a clear responsibility for building and maintaining morale. But we must also, and concurrently, prepare for the new day. Our ideals—our guiding principles—will glow with new meaning and new power if we set ourselves resolutely to the task of creating, or helping to create, the new pattern in education to fit the new society already here and ever changing. —P. M. C.

Structure of Educational Research

By G. T. BUSWELL

THERE are many evidences that the vigor of the educational research movement during the two decades from 1910 to 1930 has not been equaled by the efforts of the last ten years. There have been fewer important techniques developed and much of recent research can be characterized as an extension of methods of study developed prior to 1930 and lacking in a high degree of fertility in sensing new methods for attacking problems of education. Educational research seems to be on a plateau.

There appears to be considerable concern over the present status of research. Only a few years ago the National Society for the Study of Education devoted an entire yearbook to *The Scientific Movement in Education*. More recently a committee of the American Council on Education has been studying the nature of educational research and has produced some initial publications dealing with this problem. In September of the present year the University of Chicago devoted one of its symposia on the occasion of its Fiftieth Anniversary Celebration to the problem of the conceptual structure of educational research. On that program three stimulating papers were presented by Professors T. R. McConnell, Douglas E. Scates, and Frank N. Freeman. These and other publications relating to research indicate that the scientific study of education is outgrowing its infancy and has now matured to the point where it is ready for a higher level of expression.

A careful review of the progress of educational research during the present century does not lead the writer to any feeling of discouragement as to the possible contribution of a scientific study of educational problems. Quite to the contrary, it leads to the belief that the achievements in research up to the present time have contributed mightily to a vigorous development of public education and that they challenge the present generation of students to develop a structure of educational research on a higher plane than was possible when the movement was new.

★ *G. T. Buswell is Professor of Education at the University of Chicago, Chicago, Ill. He is a member of Phi Delta Kappa.*

A brief overview of the trends in research since 1900 will lay a basis for proposals for its present improvement. Illustrations will be drawn from four fields of educational research.

The psychological study of mental abilities had little to build upon in the year 1900 except some of the initial studies of Cattell and his students made during the 1890's. Some of the present concepts for measuring mental ability had not yet been developed. It was not until 1908 that the first edition of the Binet-Simon test was made available and not until 1916 that the Stanford Revision by Terman was published. During the early stages of the intelligence testing movement, experiments were carried on with many miscellaneous tests. Some of these resembled ordinary parlor tricks and research with them could often be described as little more than tinkering. However, with the emergence of certain concepts, the structure of research in mental measurements began to take definite form. The concept of mental age was one of these and, later on, the concept of a ratio measurement, such as an I.Q., gave much flexibility to research in this field. As the measurement movement expanded and began to produce achievement tests as well as intelligence tests, important statistical concepts were developed. The publication of Thorndike's *Mental and Social Measurements* as well as other books on statistical methods contributed much toward the refinement of the measuring scales that were being built. The measurement movement, surveyed as a whole, furnishes an excellent illustration of how one field of research grew from an immature tinkering with mental abilities to a rather highly developed method of measuring. We frequently deplore what is sometimes described as a tinkering variety of research, and yet even this tinkering proved to be far more productive than the *a priori* arguing

which characterized the handling of education problems prior to the application of research techniques to their solution.

Another example of the development of research might be drawn from the field of learning and the application of laboratory techniques to the study of such problems. With the introduction of objective laboratory techniques by Wundt in 1878, a new impetus was given to the study of problems of learning. Judd, who received his training from Wundt, brought to America some of these new techniques plus a high degree of fertility in sensing their applications to problems of learning in school. His early publication of *Genetic Psychology for Teachers* started a line of research which has been immensely productive in influencing both methodology and content in many fields of learning. Here again some of the early studies seem to be little more than tinkering with laboratory apparatus, but as the techniques developed, new directing concepts were formulated and at the present time this type of research has reached a considerable degree of maturity in several fields of education.

In the field of the curriculum the techniques of educational research were at first of the simplest kinds, the most frequently used being nothing more than counting. Such contributions as Ayres' tabulation of the thousand commonest words in the English language, followed by other more extensive studies, have provided a ground work for a spelling curriculum which would have been impossible to attain by the older methods of intuition as to what words a child should learn to spell. This notion of frequency-count was then applied to other curricular fields, sometimes productively and sometimes not. The development of a theory of social utility in curriculum construction depended directly on researches in counting frequencies. This technique as applied to the curriculum reached its peak in some of the very extensive studies of Charters and his students. These studies have waned somewhat due to the failure of their proponents to develop any adequate theory for interpreting the frequencies which were so painstakingly derived. Nevertheless, the objectivity of the frequency studies has eliminated the easy-going subjective method of determining what the content of a curriculum should be and the findings of these studies may still prove to be productive when students of the curriculum carry their thinking far enough to arrive at a defensible general theory of education.

Researches in personality have followed a different pattern from those in the three fields just enumerated. The early scientific studies in this field, as for example, Münsterberg's work in vocational guidance, were shunted away from applications to education and there has been a considerable gap, both in time and in kind of techniques employed, between the early work in this field and the present interest in personality and guidance. The clean-cut scientific studies in this field are fewer in number than in the fields of mental measurement, learning, and curriculum. Some of the work now being done in personality is carried on in apparent ignorance of some of the basic concepts of research which are commonplace in other fields. Objectivity of data is less emphasized, reliability of findings is often overlooked. Nevertheless, there are evidences of fertility in developing new research techniques which, when they mature, may make significant contributions.

In the four fields just mentioned a certain pattern of development seems to be common. The antecedent of the initial scientific studies in these fields was in each case an *a priori* reasoning without adequate data for a basis. These pedagogical discussions resulted in a widespread reaction against the futility of talking without evidence. The early research studies attempted to produce some objective facts which could form a basis for dealing with educational problems. Necessarily the early techniques were simple and in many cases went little beyond ordinary counting. Gradually new concepts for refining research were introduced. Fertility in developing new techniques accounted for a considerable share in the building of a body of basic quantitative data concerning many educational problems. The easy stages of this kind of research have now for the most part been exhausted. New techniques appear less commonly and there is appearing much research, the findings of which are new only to the person who produces them. Educational research is ripe for a more mature set of procedures. These procedures can scarcely be developed until the basic concepts now available are set forth more clearly.

The present writer does not have the temerity to attempt to list or define those concepts which are

necessary for building a higher structure of educational research. He will, however, risk mentioning a few examples.

Productive thinking in the field of mental abilities is very clearly affected by the development of certain basic concepts. Distinguishing between concepts of mental capacity and mental functioning has done much to clarify thinking. The concept of an age-grade scale has furnished the technique which has been productive of much valuable work. The concept of primary mental abilities is now influencing research in mental measurements in a way which is likely to prove very productive.

In the field of statistical techniques several concepts are so well known and so widely accepted that no mature student would think of carrying on research without adequate attention to them. For example, the concept of a normal distribution curve as contrasted with the older notion of a rectangular distribution of abilities has so influenced thinking that the whole pattern of expected educational achievement is adjusted to this notion. The concept of reliability of a sample is now so clearly established that no competent student would attempt to defend a conclusion regarding a basic issue without careful attention to this aspect of his data. Only the amateur disregards the reliability of the samples which he uses.

In experimental studies the concept of a control group in research procedure is now so well established that it is commonplace among competent students. The structure of experimental research has been widely influenced by this one concept. The concept of a single variable in experimental research is another example of a method of control which has added much to the precision of experimental findings. In nearly every subject field there are some mature concepts which serve to direct and define research in those fields. For example, in the field of reading, thirty years of research on eye movements have served to clarify certain basic concepts relating to the perceptual processes in reading, thereby simplifying remedial techniques in a field which is much afflicted by a superabundance of miscellaneous proposals.

There are undoubtedly some ideas very simple in character but very significant in value which will still be picked up by the amateur. But the field of these ideas has been pretty well picked over and the frequency of such fertility is decreasing in marked fashion as compared with the frequency with which apparently simple ideas were developed into significant techniques and concepts during the two decades preceding 1930. This means that if research in education is to go forward, departments of education must give even more attention to developing in students an understanding of those concepts which are essential to the conduct of research at a mature level.

We are now at the stage where the data in a field must be related to an attempt to develop explanatory theory. In place of tinkering on problems, an attack must be preceded by familiarity with previous work in the field and particularly by an understanding of those concepts which will make possible the formulation of significant hypotheses. Education now is suffering much from a lack of mature hypotheses to guide its research. A new generation in education, discouraged by the delay in pushing scientific work to higher levels of maturity, is resorting to the practices of the pre-research era in education and is attempting to solve its problems by a method of talk, sometimes with complete innocence of a knowledge of the available data relating to its problems. The futility of such talk was what stimulated scientific research in the first place.

In summary, the proposals of this paper are as follows: Educational research has developed through a forty-year period of study an immense body of data, some of which are important, many of which are inconsequential. Furthermore, it has developed a series of research techniques which have proved their values in the search for truth. However, many of these techniques have been at a simple level and the majority of the researches have been carried on without the benefit of adequate hypotheses and without the direction of guiding concepts which have grown out of previous research. This kind of procedure is to be expected in the development of a new field and, in spite of its limitations, has produced results of immense value to education.

However, there are evidences that the productivity of these simple techniques and methods of research is diminishing. The proposal of this paper is that there is now a need for an assessment of the basic concepts produced by research which will guide both in further research and in

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Trends in Educational Research

By ARNOLD E. JOYAL

WHAT are the trends in educational research? This is a difficult question to answer. A trend is not always easily recognized and judgments with respect to just what constitutes a trend differ among observers. However, in this report the author has tried to assemble and present in outline form what appear to him to be the trends in educational research, especially with respect to methods and techniques employed and goals or objectives to be attained. No attempt has been made to analyze trends with respect to the amounts of attention being given or the volume of research being produced in particular fields of education.

A number of sources have been used in an attempt to deduce these trends. It is impossible to acknowledge all of them. The three principal helps have been (a) selected issues of the *Review of Educational Research,* particularly the December, 1939, issue entitled "Methods of Research in Education,"[1] (b) recent reports of the annual meetings of the American Educational Research Association,[2] and (c) the American Council on Education's report, prepared under the direction of Dean Holmes, called *Educational Research.*[3] Numerous reports and articles have been analyzed, among the most useful of which have been ones by McConnell,[4] Whitney,[5] and Segel.[6]

★ *Arnold E. Joyal is Professor of Education, University of Maryland, College Park, Maryland. He is a member of Phi Delta Kappa.*

For the reader's convenience the trends have been outlined in succinct form under the two headings, (a) tendencies away from and (b) tendencies toward particular methods or goals or the like. In some cases, where it seemed appropriate, a specific illustration has been given as an example. It is recognized that this abbreviation of statement and simplification of presentation has some inherent dangers. Probably the alleged "trends," in some instances, are oversimplified. Certainly there are numerous exceptions and variations. And doubtless the list omits significant items.

TRENDS IN EDUCATIONAL RESEARCH APPEAR TO BE:

Away from	Toward
Objective problems which lend themselves to detailed statistical analysis and depend for solution on mathematical answers. *Example:* "An analysis of the content of selected high school textbooks in Economics."	Studies that suggest what best practice should be and imply a dissatisfaction with current procedures. *Example:* "A proposed reorganization of the guidance program in ——— high school."
Problems which analyze, compare and evaluate practices currently in use, often tacitly approving the "status quo." *Example:* "What use is made of intelligence tests in high school guidance programs in ——— County?	Problems which admittedly require subjective analysis. *Example:* "What consumer knowledges should be included in the education of all high school pupils?"
Problems which are limited or confined to the school itself and may be studied within the school building. *Example:* "An analysis of thievery in the high schools of the state of Osceola."	Social and economic problems which require study in community, home, church, and government affecting individuals as citizens, producers, and consumers. *Example:* "What specific factors in school and community life affect juvenile delinquency?"

Trends in Educational Research Appear to Be *(Cont.)*:

Away from	Toward
Relatively narrow problems which may be completed by one person within a comparatively short time at a small cost. *Example:* "How is the selection of library books in ——— school affected by the oral reading by the teacher of interesting portions of the books?"	Broad general problems which demand cooperation of many persons over a relatively long period and require strong, financial backing. *Example:* "How is the achievement of high school pupils in fundamental knowledges and skill affected by curriculum changes which establish relatively informal functional courses in place of the more traditional academic subjects?"
Conventional mass statistical procedures as a method of analysis for developmental data, frequently referred to as "normative research." *Example:* "What is the nature and extent of educational inequality in the state of Osceola?"	The increased use of the genetic method, involving as it does the origin, rate, direction, and patterns of development and change." *Example:* "The history, present status, and proposed development of a program of state aid for Osceola."
Problems which aim to evaluate learning in terms of specific situations. *Example:* "Under what circumstances is the take-away method in subtraction more effective than the additive method?	Study of characteristics of children which may be significant in administering a program of education. *Example:* "How may the curriculum in arithmetic contribute to the sound emotional development of children?"
Accumulation of data, emphasis on amount of data, and dependence on amount of work involved for "acceptance" of research.	Attention to interpretation of data and the implications and generalizations which they justify.
So-called "normative research," usually implying acceptance of the status quo.	Genetic studies, involving trends.
A tendency to regard the case study as a temporary expedient, an exploratory device, or as a means of organizing data collected by other methods.	Recognition of the *case method,* skillfully used, as the most comprehensive of all techniques, as a procedure for developing a framework within which data gathered by other methods may be placed.
Appraisal of school systems, in surveys, through use of the results of standardized testing programs as bases for comparison, emphasis on building and apparatus as laws unto themselves, and other analysis of objective data expressed factually.	Increasing social emphasis in education, toward treatment of education as a broad social enterprise, to be evaluated as such.
Use of the questionnaire as a devise for collecting factual data which may be treated statistically.	Wider use of the questionnaire for a variety of purposes, including the stimulation of interest in supervision, for example, or the "sounding out" of a recipient's attitude toward some problem.
The use of the interview as a carefully structured, questionnaire type of procedure, often administered by untrained interviewers.	Its use, by experts, as an unstructured situation, in recognition of the fact that flexibility and adaptability to individual differences are essential if an accurate picture is to be obtained.
Analysis of devices and procedures, with little attention to actual changes in pupil behavior, as the basis for evaluation.	Analysis of changes in behavior, as the basis for evaluation.
Presentation of statistical data in tabular form with occasional use of charts and graphs.	Increased use of pictographs, pictures, and other visual aids in presenting such statistical data.

Many of these alleged trends merit further discussion. Probably some of them should be defended and supported with evidence. Space limitations make this impossible. Only two or three of the more significant tendencies can be mentioned.

Undeniably there is a trend toward cooperative long-time appraisal. Many of the most significant researches currently underway or recently completed have been participated in by several agencies, and have extended over a period of several years. Segel,[7] summarizing recent studies of national scope or significance, devotes over half his report to such researches. Examples of these studies are the Cooperative Study of Secondary School Standards,[8] participated in by some 200 schools over a period of several years; the New York State Survey,[9] one of the most comprehensive state surveys ever made, financed by the General Education Board, conducted by a large number of well-known researchers, and published in thirteen volumes; and the Local School Units Study,[10] sponsored by the United States Office of Education and conducted in ten states.

Educational research is becoming more philosophical and subjective. Evidently education and the educative process are coming to be recognized as more complex than was previously believed to be the case. They seem less subject to purely quantitative appraisal. Researchers are coming to realize that their product, if it is to be significant, must first of all be valid. Human behavior, with which most educational research is primarily concerned, is a highly variable and intricate phenomenon. Before it can be measured or evaluated or before the impact of some device, or procedure, or idea on the reacting organism can be measured, it is essential that one must understand, classify, and define behavior, as well as the instrument, or device, or idea. The appropriate definition or classification, under given conditions, will depend on the educational objectives, the specific learning conditions, and many other variable factors.

Researchers in education are giving up the idea of trying to imitate the physical scientists. They recognize and admit that many, if not most, of their problems do not require the refined techniques of the scientific laboratory. Consequently, there is a marked reduction in the display of "statistical millinery and quantitative regalia" in research reports.

Certainly, to the extent that this is true, it is a desirable trend. Perhaps, however, the apparent trend is, in reality, merely an expression of the wishful thinking of the writer. On second thought, is this trend not to be expected and does it not seem logical? Education has been and still is a new and a rapidly expanding field for research. During the quarter century from about 1905 to 1930, the big task which faced this newly developed research field has been one of stock-taking. Education needed to count and tabulate and find out what is going on. It needed to investigate the use of "pupil-stations" in school buildings. Administrators and school boards wanted the facts about test results, transportation, textbooks, and toilet facilities. But the counting and tabulating is now pretty well completed. Most of the basic facts, in this strictly material sense, are now discovered and available. Now educational research can take the next step—that of clarifying the problems associated with effecting desired changes in behavior. Evidently that is just what is happening.

1. *Review of Educational Research,* IX, No. 5 (Dec., 1939). Washington: American Educational Research Association.

2. American Educational Research Association. *Official Report of 1940 Meeting.* (Also reports from 1939 and 1941.)

3. American Council on Education. *Educational Research, Its Nature, Essential Conditions, and Controlling Concepts.* Series I, Volume III, No. 10; Washington: 1939.

4. T. R. McConnell. "The Nature of Educational Research," *Educational Record,* XXII, No. 4, (Oct., 1941).

5. F. S. Whitney. "Methods, Types, and Techniques of Educational Research," *School and Society,* 54, No. 1397 (Oct. 4, 1941), p. 282-83.

6. David Segel. *Educational Research Studies of National Scope or Significance.* Biennial Survey of Education, 1936-1940, Vol. I, Chap. 10. Washington: U. S. Office of Education.

7. *Ibid.*

8. Cooperative Study of Secondary School Standards. *Evaluation of Secondary Schools; General Report.* Washington: The Study, 1939.

9. Published by McGraw-Hill Book Co., New York, under the names of various authors and with various titles.

10. H. F. Alves, and Others. *Local School Unit Organization in 10 States.* Bulletin 1938, No. 10; Washington: U. S. Office of Education.

Education Costs

"At the end of the decade (1930-40) all but three state governments were spending larger amounts for elementary and secondary schools than they had been spending in 1930. But the expenditures for schools by 24 state governments constituted a smaller proportion of total expenditures at the end than the beginning of the decade."—*The Journal of the National Education Association,* September, 1941.

Research as a State of Mind

By FRANCIS F. POWERS

THE PURPOSE of this article is not to delineate rules of research or to restate the tenets of scientific method which govern conducting of scientific experiments. These things may be found discussed quite well enough in any of the several standard textbooks on methods of research. Rather, it is the purpose herein to consider another and equally important phase of research method which has received much less attention—namely, the psychological attitudes underlying research as they are embodied in the attitude of the researcher.

We are all familiar with the type of scientist who is entranced by mere collections of data, masses of statistics, endless tables, etc. We are equally familiar with the experimenter whose primary aim appears to be to make such collections of data. While no one of scientific bent of mind denies the value of objective techniques and statement of results, it nevertheless remains a fact that there are two important phases of research which are purely matters of judgment and which cannot be stated in mathematical terms. The first of these is the scientific reflection required in the discernment of the problem and the planning of the technique to be employed. The second is the interpretative application of the results to practical situations and the fitting of the results into a complete picture, the other portions of which are comprised of previous experimentation, govering circumstances, etc. These two phases may be termed the judiciary phases of research.

The judiciary phases of research bring us very close to the topic of this paper since proper judgments as to selection of problems, setting of technique, and interpretation of results require a type of mind which is a rare combination of superior ability and scientific training. The exercise of this facet of mentality can be legitimately compared to the determinative function of diagnosis in the practice of medicine where analytical judgment and a keen sense of discrimination and relationships are the critical factors. It is no reflection on the profession of surgery to say that, given a correct diagnosis, the practice of surgery is largely a matter of a steady hand, a keen eye, and plenty of courage.

★ *Francis F. Powers is Dean, College of Education, University of Washington, Seattle. He is a member of Phi Delta Kappa.*

There are certain psychological attributes of the true research worker which merit a bit of consideration. Of these, complete freedom from prejudice is second to none. The spirit of investigation and a scientific attitude are not the peculiar property of any branch of learning or discipline. The division between "pure" research and applied research is a silly division and should be forthwith dropped. All genuine research, except possibly that done by the schizophrenics in institutions, is practical research and any research conducted with the best technique for the problem is "pure." Differences in research between different fields of investigation are largely differences in method and in the size of the probable error of the results. It is entirely erroneous to attempt to establish qualitative differentiation between research in social science and so-called exact science. There is an overlapping both of method and of equipment. Exact science is exact only in the sense that the error of measurement is likely to be less large. One of the rudest shocks that the writer ever received was being told by a colleague in a so-called exact science, on an occasion when some technical advice was being sought on a phase of method, that there was no such thing as research in social science. Self-appointed purists with such an attitude not only do nothing to advance research but are soon engaged in a vast belaboring of each other when there is no lowly social scientist over whom to lord it. Anyone who feels that a criticism such as this is mere recrimination would do well to review his history of science or to inquire into some of the current squabbles of the day, now in noisy progress in the ranks of the pure. The genuine research

worker recognizes no boundary lines of research and looks for no trademarks. He is interested solely in whether the problem being attacked is worth attacking and whether the technique proposed is sufficiently objective to give fair promise of reliable results.

Another necessary characteristic of the investigative frame of mind is patience. The majority of research workers are fairly human and naturally many of them are trying to attack a problem which admits of a reasonably speedy solution with the credit for such solution being likewise speedy. This is very well as far as it goes, and there are many problems of this sort in the realms of science, but a fundamental problem is likely to be complicated by the interlacing action of a distressing number of variables and a solution is often long deferred and discouragingly involved. Examples of this in the field of professional education may be noted in some of the experimentation on the psychology of the elementary school subjects. Perusal of some of the early experimental work, which incidentally was well conceived and executed, in many cases leaves one with the impression that the experimenter felt that the issue had been pretty well solved. Subsequent events, however, and increasing attention to remedial education have made it quite plain that in many instances the experiments were superficial and the conclusion on their finality was highly premature.

A third quality of the research worker of merit is a strong tincture of social altruism. Logically, of course, there is nothing intrinsically inconsistent in a research worker being ulterior in his motives and governed primarily by economic incentives. Indeed some highly creditable research work is done in the subsidized research foundations of large industrial concerns whose primary purpose is business. When one examines carefully, however, the history of the world's outstanding research discoveries, he finds that they were made by men who were strongly imbued with a zeal for finding out the truth and that the economic reward which sometimes followed was a secondary consideration rather than an original or primary aim.

Obviously, if this description of the essentials of research and the adequate research worker has elements of correctness, it inevitably follows that there are certain things to be done in the selection and training of research workers. A consideration of the expert research worker and his qualities is tantamount to consideration of good research and the latter will inevitably follow if the former is assured. It is scarcely necessary to offer elaborate evidence to substantiate the point that experimental research requires a definitely superior mentality combined with the qualities of perseverance and power of analysis. Research work should be completely free of nepotism and of those whose entrée is social rather than academic.

As research becomes progressively specialized and research techniques increasingly complicated, it is a most happy circumstance when the research worker is able to decide fairly early on his line of specialization. It is highly desirable, it goes without saying, for one to have the basic fundamental techniques in the area well under control, and the length of time that this will take depends upon the area itself and the length of time that systematic work has been in progress in the field.

Structure of Educational Research

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applications of the findings of prev ·us research to educational problems. This is a task of interpretation and integration and must be done by men who are familiar with research and who sense what clean-cut concepts and clean-cut hypotheses are. It is a job which needs to be prosecuted vigorously and which should result in a series of concepts validated by research which will make it possible to develop a structure for further research in education at markedly higher level than has been possible up to the present time.

The objectives of this higher research should be much more than the development of a body of knowledge. It should be the development of a body of theory which rests upon data interpreted through concepts of the highest order that are now possible. From such an undertaking there should result guiding principles for the conduct of education, principles of such a degree of generality that an understanding of them would cover many specific problems faced by an individual. Research is never complete until it provides a basis for defensible theory.

Applied Research and Education

By CHARLES C. PETERS

★ *Charles C. Peters is Director of Educational Research, School of Education, Pennsylvania State College, State College, Pa. He is the author of several education books and is a member of Phi Delta Kappa.*

WE HAVE HAD two main sources of educational lore. One has been the uncontrolled observations and experiences which are ordinarily called "common sense." Teachers try certain procedures which appear to work out satisfactorily and other procedures which appear to work unsatisfactorily. They tend to hold onto the former and, especially if they seem to succeed a number of times, generalize them into "rules" or "laws." They similarly formulate the latter into types of behavior which are to be avoided. These findings from experience accumulate into the professional habits or the conscious techniques of individual schoolmen and into the principles and the *mores* of the profession. By far the greatest part of the "educational heritage" passed down to newer generations of teachers in professional training consists of such impressionistic generalizations from the experience, observation, and reflection of the masters of the art; the training takes the form of fatherly advice from mature master to less mature disciple.

This wisdom of experience is of tremendous value in the teaching profession. It covers a vast array of details regarding which we have available no other evidence. The guidance we have on any other basis is pitiably meager in scope in comparison with that from the rich store of personal experience transmitted as informal advice or as the lore of the professional literature. But such uncontrolled personal experience has some serious pitfalls as sources of generalizations, in education as everywhere else in life. In their naïve thinking people are everywhere tempted to jump too hastily to conclusions, to generalize on cases that are not truly representative, to extend generalizations beyond what the facts warrant, and particularly to permit their wishes unconsciously to bias their thinking.

Hence there has evolved a second source of generalizations: scientific research. Scientific method is a collection of techniques for holding in check the human propensities mentioned above—the tendency to hasty generalization and the tendency to let the wish be father to the thought. There is nothing mysterious about scientific research; it parallels common sense observation, but it magnifies the observer's effort to make his observations so cautiously as to find only the naked truth. It is careful to admit into the situation only a single variable, whereas common observation often attributes to one factor in a complex situation results really due to a second, accompanying factor; it counts cases (that is, uses statistical methods) so as to restrain the tendency of free judgment toward overshooting the mark; it has built up techniques for selecting a random (and hence presumably a representative) sample; and it has developed tests for knowing when a sample is large enough to justify confidence (the problem of reliability). These are not esoteric or otherworldly things; they are merely sensible ways of compelling observations to hold prosaically to the facts.

Manifestly it would be desirable to follow up with scientific tests of validity all the important generalizations that educators have formed on the looser basis of common sense observation, and to get guarded answers to all the questions they still have to ask about educational conditions or educational procedures. But that would impose thousands upon thousands of tasks. Even when we consider only those generalizations upon which we do not feel very certain plus those for which we know full well that we have inadequate grounds for conclusions, the number of insecurely established generalizations is very great. It is our aspiration to encroach as rapidly and completely as possible upon this field with scientific research.

Some educational research has been done on a grand scale, supported by large funds. These are

illustrated by the investigation of the effect upon scholarship of having elementary school pupils use typewriters, made by Frank N. Freeman and Ben D. Wood; by the Payne Fund Studies of the Social Value of Motion Pictures; and by the Commonwealth Teacher Training Study. Under such favorable circumstances the research can be done with very satisfactory thoroughness. Some other research has been conducted, or assembled, by committees representing important organizations. These are illustrated by the studies of the contributions of Nature versus Nurture to human intelligence, reported in the twenty-seventh and the thirty-ninth Yearbooks of the National Society for the Study of Education; and by the National Survey of Secondary Education sponsored by the United States Office of Education and published as Bulletin 17, 1932, of that office. But by far the largest number of researches in the field are made by individuals and are severally rather small in scope. Some of these are motivated by the thesis requirement for advance degrees, while some are prompted by a pure-science interest in the problem or by the wish to get an answer to a practical question. These small-scope studies fit together into a mosaic, as yet extremely patchy and incomplete but growing year by year. The number of these researches by individuals is so great as to astound the layman. Since 1927 the U. S. Office of Education has been publishing the list of such investigations (mostly master's and doctor's theses) reported to it; the number has averaged not far from 3,000 annually and is now around 4,000. In the total literature there are extant probably not less than fifty thousand studies reported, probably half of them of fair merit or better.

The great difficulty has been to get the findings of this vast bulk of research implemented in practice. Even the large-scope investigations mentioned above seem to have dented practice rather little in spite of the fact that their findings were important. For the most part, master's and doctor's theses go "on the shelves" and stay there; and the researches published in journals fare little better. In consequence of this neglect many counselors on research are advising workers to do investigations which promise findings useful at least to themselves so that the studies will at least serve their authors. If, then, they affect practice beyond that of the investigator, so much the better. In the remainder of this paper I shall, therefore, be thinking chiefly of those persons who are doing research to find answers to questions because they need these answers primarily for themselves as a basis for improving their own practice.

Scientific research may take many forms, depending upon the kind of questions to which one needs the answer, such as: (1) What is the practice in other schools in some area of endeavor or other, as expenditures for books, time of beginning sight singing in music, or having pupils participate in the government of the school? (2) Which is the most effective of several alternative methods by which I am tempted to teach my class or to administer my school? (3) What are the specific respects in which each of my pupils is yet weak (diagnostic testing and remedial teaching), or how do my pupils compare in level of achievement with others (general testing)? (4) What factors lie back of the maladjustment of certain of my students (case studies)? (5) What success may I expect particular students to have in subsequent ventures (prediction)? (6) What geometry must pupils know in order to read texts in high school or college physics (documentary analysis)? (7) With what specific abilities do my students need to be prepared in order to be competent to carry on effectively the job for which I am training them (job analysis)? This list is, of course, merely illustrative of the types of questions and is not exhaustive.

Of the above research activities to be carried on by a schoolman for the improvement of his own work, diagnostic testing followed by remedial teaching is perhaps the most useful. Every trial of this technique that has come to the author's attention has resulted in markedly superior progress by groups subjected to this procedure compared to that shown by matched control groups from which this factor was absent. It is, of course, a matter of purely local interest; it makes, at this stage, no appreciable contribution to the general science of education because both its techniques and the fact that it is a highly useful procedure are well known. Curriculum construction on the basis of analysis of social needs (Type 7 in the list above) and case studies for the purpose of remedial treatment (4), are always challenging and important research jobs for local consumption. Prediction by means of tests and the regression equation (especially the

multiple regression equation) is useful where selection of pupils for entrance upon some future stage of training is necessary; but the author believes that this procedure is at present considerably overworked because of the pettiness of its statistical techniques. It is very easy to be misled as to the reliability of the predictions that can be made with our present tests.

Type (1) listed above is the area of research in regard to which it is most important to warn amateur researchers. This type of investigation is sometimes made by systematic direct observation kept objective by means of rating schedules, sometimes by interview, but most often by questionnaires. It is this last form of which amateur researchers seem first to think when they aspire to do research. It is doubtless of interest to know how matters are done in other school systems, but it is seldom of fundamental importance to know this. For, after all, the criterion for what one should himself do is not what other people do but what shows direct evidence of best meeting one's problem. Moreover, the imposition upon the time and patience of respondents made by many persons sending out questionnaires for information which serves no one but themselves, and not even themselves in very important ways, is little less than impudent.

Nevertheless there do come times when it is indispensable that one have certain information which he can not get from documents or from his own observation. Hence some questionnaire studies are necessary. In order to hold these to the necessary minimum in the Department of Education and Psychology at the Pennsylvania State College we have the following arrangement. Each fall we announce to our graduate students that if anyone feels that he must send out a questionnaire, and continues so to feel after the probable needlessness and futility are explained to him, he is permitted to do it under the agreement that he shall work it up well and publish the findings and then be shot. Of course no real scholar would hesitate to send a questionnaire under these conditions if he feels it really necessary; he would gladly give his life to serve the cause of the science of education. But this does hold down the sending of unnecessary questionnaires. It might be a good thing to universalize this Penn State rule.

The controlled experiment (to answer questions of type 2) is a never-ending challenge to researchers. Alert teachers are continually entertaining the idea (hypothesis) that some other method of procedure than the one they customarily employ might be superior. The non-scientific way of resolving such alternatives is to attempt to reason out the answer or to make comparative trials of the alternatives and make choice on the basis of general impression. The scientific way is to match experimental and control groups, apply the differentiated methods, and measure the outcomes objectively. The controlled experiment has had a long history in educational research and its techniques have been thoroughly worked out.[1]

One of the elements in the interpretation of statistical research that is likely to seem most baffling to laymen is the estimate of reliability in terms of probability, applied in substantially all statistical research but particularly where differences are involved. But this concept is really simple. When a difference of means occurs between the experimental group and the sample with which the experimenter deals it would not be identically the same as the difference that would be found in a second and a third and further samples. Some of the differences would be greater and some less, and some might even be in favor of the opposite side from that of the first sample. The same is true if one were interested in the difference between the proportion of girls who voluntarily read books outside of class assignments and the proportion of boys who do so, or if he were studying the difference of an obtained coefficient of correlation from zero, or any other statistical difference. In order that one may not place too much confidence in the difference he has obtained in his sample, he needs to know what the probability is that, in a very large sample, this difference might sink to zero or even jump to the other side. This can be done by the use of formulas, most of which are not very complicated and can be interpreted by means of tables quite within the reach of persons without mathematical training.[2] This is a safeguard that even amateur researchers should take lest they deceive themselves about the dependability of their findings. But, of course, reliability is not the chief

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[1] For an account of these, see Peters, C. C., and VanVoorhis, W. R., *Statistical Procedures and Their Mathematical Bases* (New York: McGraw-Hill, 1940), chap. XVI.

[2] *Ibid*, chaps. V and VI.

Effective Reporting of Research

By CARTER V. GOOD

THE RESEARCH REPORT represents the exposition type of composition and, as such, differs from description, narration, and argumentation. It is true that historical writing employs narration to an extent not found in other types of research. The function of exposition, and of the technical or research report, is to communicate ideas in such form as to be readily understandable and usable by the reader.[1] This statement emphasizes the ideas or evidence to be communicated, as well as the guiding purpose of the investigator in making the study and in preparing the report, rather than form and style of expression as such. In other words, the scientific character of the data presented and the insight with which evidence is interpreted should be the major considerations in the evaluation of reports.

Fortunately, there appears to be a definite relationship between clear thinking, logical organization of materials, sound interpretation, and an effective style of writing. On the other hand, carelessly prepared reports frequently represent loose thinking, faulty interpretation, and even errors in citations and calculations. Also, it is difficult for the reader to give undivided attention to content, if organization, form, and style are faulty or ineffective. Therefore, this article includes consideration of certain details of form, usage, and style.

The Communicatory Stage

The preparation of the report should be viewed as a stage in the progress of the research project rather than as a process separate from the analytical steps of formulation of the problem, selection of the data-gathering procedure, collection of data, and analysis and interpretation of the evidence. Just as analysis is necessary from the very beginning of the investigation, careful notes covering the same stages are essential to preparation of an effective and complete report. First drafts of the introductory chapters or sections on the formulation of the problem and on the review of related studies can be prepared even before the data are collected.

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Major Divisions of Report

Relatively short reports or papers of less than fifty pages hardly lend themselves to the chapter form of organization, but can be divided into appropriate sections, with center and paragraph headings. The parts of the extended research report or thesis are commonly those outlined below.

Title Page
Acknowledgment (The terms Preface or Foreword ordinarily are used in printed books, and sometimes an Editor's Introduction is included.)
Table of Contents
List of Tables
List of Figures
Formulation and Definition of the Problem (One or more chapters dealing with such items as the problem, sources, procedure, and related literature)
Presentation and Interpretation of Data (Usually divided into several chapters)
Summary and Conclusions (Restatement of problem, sources, and procedure; conclusions and their limitations; application and recommendations; needed research)
Bibliography
Appendix
Index (Customary only in printed volumes)

Outlining and headings.—Certain skills in outlining and in selection of appropriate headings are essential to the development of the subdivisions of the major parts of the research report. Use of separate slips of paper for headings or subheadings permits the arrangement to be varied at will until the most satisfactory grouping of topics is found. It is essential that such headings be prepared before

[1] For an extended discussion of this point of view see J. R. Nelson, *Writing the Technical Report* (New York: McGraw-Hill Book Co., 1940), pp. 3-7.

rather than after the writing is done. A more advanced stage of thinking and outlining is represented by the brief, which expresses concisely the principal statements to be developed under each topic. If only one of these statements is placed on a card or slip of paper, it facilitates further revision of the outline and brief.

There is an interrelationship between note-taking, outlining, and selection of headings. A certain amount of preliminary reading and note-taking is necessary before the major topics of the outline begin to stand out in relief. In turn, the provisional outline and its headings serve as a guide for further reading, study, and note-taking. A unifying theme is present in most good outlines, and especially in well-written briefs and reports.

Noun rather than verb forms, and phrases rather than sentences, should be used for headings. The phrasing should be coordinate or parallel in structure. Center headings (centered on the page) may be typed "single caps," that is, with the principal words capitalized. Paragraph headings (run as a part of the paragraph) are underlined in typing (usually italics in print), without capitals except for the first word. Many writers prefer to capitalize all words except articles, prepositions, and conjunctions in the paragraph headings of typed manuscripts, to which there can be no serious objection, although this is an infrequent practice for the printed page. A heading is not necessary for each paragraph. A new paragraph heading is required only when showing the transition in thought to a new unit. There are definite advantages in keeping the length of a heading within a single line.

Title and title page.—The title of a report should be concise and adequately descriptive, with the inclusion of the important nouns to serve as key words in the subject indexes of journals and of library guides. Beginners in the art of writing sometimes have to be reminded that the report cannot be made in the title; in other words, no sufficiently lengthy title has been devised to describe adequately the problem, sources, procedure, and results. Sometimes a sub-title is employed in the interest of clarification, although this purpose is not always served, since the sub-title is frequently omitted from references and guides. Therefore, a single comprehensive title is recommended.

Certain forms of expression and phrasing are to be avoided. "Some Aspects of—" and "Comments on—" are vague generalities unsuitable for inclusion in the title of a research report. "A Study of—," "A Scientific Study of—," "An Investigation of—," "An Inquiry into—," and "An Analysis of—" are usually superfluous words that can be eliminated, in view of the fact that the graduate thesis presupposes study, investigation, inquiry, or analysis of an objective character. Exceptions to this include quite legitimate attempts to indicate the research method employed; for example, "An Experimental Investigation of—," "A Genetic Study of—," or "Factor Analysis of—." If the title of the report can be made so interesting as to arrest the attention of the reader, so much the better, although the dignity of research and of the graduate school cannot permit the type of catchy, bizarre, and misleading title so frequently coined for novels, journalistic writing, and the movies.

Acknowledgment.—For all practical purposes in thesis writing, the terms acknowledgment, preface, and foreword are synonymous, although printed volumes frequently make distinctions between such terms as preliminary parts of a book and sometimes include an editor's introduction. The expression, acknowledgment, is the commonly used label for the page following the title of the research report. However, this section should be included only when substantial assistance and cooperation of a non-routine character require public recognition. The wording should be simple, concise, temperate, tactful, and modest. Bestowal of praise or expression of indebtedness in effusive, sentimental, or extravagant language may cause the reader to question the sincerity of the investigator or the soundness of the study. The listing of well-known names, whether on the faculty of the local institution or elsewhere, to court favor or to enhance the value of the study by lending to it a fictitious authority, is a form of intellectual and professional dishonesty. Types of acknowledgment that have become stereotyped and may well be avoided are those referring to: the patience and tolerance of a spouse during the pursuit of the graduate degree, exaggerated tributes to the advisory committee, contributions of the graduate classes attended, librarians from whom books were borrowed or references secured, efforts of the typist, clerks assisting in the scoring of tests or

tabulation of data, operators of calculating machines, and casual or occasional interviews or letters. If these recommendations, by the process of elimination, leave the impression that the acknowledgment may well be simple and very brief, the purpose of this discussion has been accomplished.

Dedications are ordinarily in questionable taste. The relationships involved are usually of a personal nature and as such hold little interest for the public; the obligation to spouse, parents, professors, or students might better be expressed in private. In some instances the quality or character of the work may even be such as to embarrass the person to whom dedicated.

Table of contents.—An adequate table of contents serves as a synopsis or headline display of the design or structural pattern of the body of the report. If the working outline is logical and the appropriate topical headings are parallel in phrasing, as recommended earlier in this article, the table of contents should prove equally meaningful and satisfactory. The relationship between major headings and sub-topics can be shown by variations in capitalization and by indentation.

A reasonably comprehensive table of contents is essential for the typed report or thesis, with the pages indicated, since ordinarily no index is prepared. In most instances, the center and paragraph headings for a single chapter will not extend in length beyond one page. For the majority of chapters, the space per chapter in the table of contents probably will not exceed one-half page. Occasionally the synopsis is so detailed as to create the impression that an attempt has been made to write the report through the medium of the table of contents. A heading that is confined to one line in the body of the report, and in the table of contents, usually is advantageous in terms of brevity, clarity, and readability; to go beyond two lines seems inexcusable. In the interest of accuracy, these headings must be checked carefully against the manuscript, especially after each revision and retyping, when rephrasing or renumbering of pages may have taken place.

Lists of tables and of figures.—A separate page or pages should be devoted to a listing of the tables presented in the report, which likewise holds for the list of figures. The essential information is the number of the table or figure, exact title, and page where found in the body of the report. Consecutive Roman numerals (capitals) are used for identifying the tables, and Arabic numerals for figures. The first letter of the principal words (except articles, prepositions, and conjunctions) in the titles is capitalized. For practical purposes and in the interest of simplification, figures may include all types of illustrations, whether known as graphs, charts, diagrams, maps, or photographs. It is imperative to check the titles and numbers in the lists against the manuscript after any revision or retyping.

Formulation and definition of the problem.—Up to this point the pages of the report commonly are numbered in small Roman numerals to indicate the preliminary character of the material presented. With the introductory chapter, concerned with such matters as the formulation of the problem, sources of data, research method employed, and related studies, the Arabic numerals begin. One or more chapters may be required for an adequate introduction to or overview of the investigation, depending on how fully it seems necessary to define the problem: analysis of the problem into its constituent elements, limits or scope of the investigation, orientation and related literature, sources of data and method, need for the study, technical terminology, and initial assumptions.

In effect, a well organized report tells the reader where he is going, takes him there, and then tells him where he has been. The wife of Josiah Royce whimsically makes a similar statement, in more complicated sentence structure, about her husband's method of lecturing at Harvard.[2]

> Oh, Professor Royce's method of lecturing is quite simple. He always tells his students at the beginning of the hour just what he is going to tell them, and how he is going to tell it to them; then he tells them exactly what he told he would tell them in exactly the way he told them he would tell them; then, at the end of his lecture hour, he always takes time to tell them that he has told them what he told them he would tell them.

In agreement with the sequence named in the two preceding paragraphs, the introductory chapter of the research report looks forward (and to some extent backward, through the related literature and the historical background). The body of the thesis presents the data and interpretation.

[2] J. R. Nelson, *op. cit.*, p. 30.

The chapter of summarization and conclusions looks backward (and forward, through discussion of applications, recommendations, and needed research).

The straightforward procedure is to state the purpose of the study in the opening paragraph. Many readers are annoyed and confused when several pages devoted to reasons for undertaking the investigation, the importance of the problem, and the historical setting precede the statement of what the problem actually is. One way of focusing attention on the major function of the introductory chapter is to use such a title as "Formulation and Definition of the Problem" rather than the vague general term, "Introduction." Certain of the more detailed explanatory materials sometimes found in the introductory chapter could more appropriately be placed in the text or footnotes of later chapters.

It is helpful to prepare a first draft of the overview section early in the course of the investigation, before details are forgotten and to secure criticism in time to modify procedure. This plan should result in additional background and insight useful in rewriting the introductory chapter. As a measure of the adequacy of the definition of the problem, the investigator should ask himself whether one who has never heard of the study can secure through the statement an adequate overview of purpose, sources, procedure, etc. An even more challenging test is to ask the same question with respect to the reader of fifty years hence, when all of the persons connected with the investigation will have been removed from the immediate scene of action.

Presentation of evidence.—If the introductory section of the report meets the standards recommended above, the transition to the presentation and interpretation of the data should prove smooth and unified. A factor that frequently lies back of a disconnected report is the inexperience of the young writer who forgets that the typical reader has had no previous experience with the substance of the particular study. He leaves gaps in his organization of ideas, partly because the missing links have become so commonplace in his thinking and experience that he overlooks their importance for the reader. Such lapses can be prevented to some extent through a logical outline, a brief of key statements, well organized notes, and carefully worded headings.

In the first draft it usually is expedient to place each table on a separate page and to begin a major heading on a new page. This procedure leaves room for insertion of transitional or connecting statements, and, with judicious use of scissors and paste in the work of revision, makes unnecessary the recopying of certain parts of the manuscript. Of course, in the final draft of the report full pages are typed in the conventional fashion.

The chapters that make up the body of the report vary in content and organization with the type of research method employed. In historical writing the narrative is told through a series of chronological or topical chapters; sometimes both forms of organization appear in a single study. The survey type of report consists of the tables and interpretation picturing the status of the current conditions investigated. An experimental study usually has a series of chapters dealing with details of equipment, procedure, and results. The narratives of actual case studies frequently constitute the bulk of the report where the case method has been used.

Within the chapter itself much can be done to insure unity through use of introductory, transitional, and summary paragraphs and sentences. When a series of points is to be discussed in detail, preliminary enumeration of them serves as a helpful introduction. Cross-references to other parts of the chapter or report are evidence of structural design and aid in avoiding unnecessary repetition, although overuse of this device may become irritating to the reader. The effectiveness of the paragraph organization is one of the best single measures of careful planning in the report.

Certain types of materials tend to break the continuity of thought in the body of the text. In many instances long tables, questionnaires, tests, legal documents, and other essential exhibits can be placed in the appendix with an appropriate cross-reference in the text. Long or partially irrelevant quotations frequently have a distracting effect on the reader. In such instances, a shorter quotation or effective paraphrasing, with appropriate recognition of the source, will prove advantageous. The use of footnotes for references and for certain types of comments is a device to facilitate continuity of thought in the body of the page. The overloading of the text (and of thinking) with statistical techniques and details is a practice that

has increased during the past decade.[3] This overemphasis has increased the difficulty of securing a larger reading public for application or implementation of the findings of educational, psychological, and social research.

Summary and conclusions.—The last chapter or section of the body of the manuscript is the summary and conclusions. This is an overview of the entire study, of particular value to many readers who may not go outside the final chapter for information concerning problem, sources, method, conclusions and their limitations, applications and recommendations, and needed research. It is not the place for introduction of new data or for encyclopedic enumeration of details reported earlier in the manuscript, but for final synthesis of the whole study. As such, it is the most frequently used part of the report. Chapter summaries are useful in preparing this section, although the mere process of adding them together falls short of synthesis.

The report began with a statement of purpose and the formulation of a working hypothesis. The chapters concerned with presentation of data are the testing grounds for the hypothesis. The last chapter recapitulates the answer to the opening question of the investigation.

The statement of conclusions does not require the repetition of the data or evidence on which they are based. Skillful grouping and appropriate subordination of conclusions under major headings are essential in avoiding encyclopedic enumeration of dozens of individual statements. Any discussion of limitations or qualification of results should avoid both an apologetic attitude and overconfidence. If applications or recommendations are made, based on the judgment and insight of the investigator rather than directly on the data, they must be plainly labeled as such. The probability of application of the results in practice will be increased, if non-technical language is used in this concluding chapter. It is better to suggest a few carefully identified problems for future investigation, springing directly from the study reported, than to enumerate a large number of miscellaneous topics for further study.

Bibliography.—The practice in research reports is to place a complete bibliography of all references used immediately after the last chapter, with continuous page numbering, although textbooks commonly print chapter bibliographies. The references are alphabetically arranged in one list by surnames of authors, unless it seems advantageous to group the materials of a long bibliography by topics (not form of publication), with the alphabetical arrangement preserved under each heading. It makes for completeness and convenience of reference to include all footnotes in the bibliography. It may even be desirable to list certain materials not examined, such as unpublished graduate theses known to be directly related to the particular problem. Of course, the typical bibliography is selective rather than exhaustive; for example, a study of the public vote on issues of school finance in a large city cannot list all of the references on voting or on school costs and educational finance.

Annotations, to the extent of a sentence or a short paragraph for each reference, make the bibliography more meaningful. The references must be numbered consecutively, if a cross-reference system of citation from the body of the report to the bibliography is used in place of footnotes.

Appendix.—All cumbersome or voluminous material not essential to the understanding of the text, but useful as supporting evidence, may be placed in the appendix of the report. Types of exhibits that tend to break the continuity for the reader, and therefore should be placed in the appendix, include: long tables and raw data, questionnaires and schedules, form letters and even important personal communications, test forms, extracts from curriculum documents such as catalogues and courses of study, and formulas. A summary table or a short quotation in the body of the report frequently is sufficient, with a cross-reference to the full tabulation or complete document in the appendix. The materials of the appendix should be grouped into homogeneous parts, provided with numbers and appropriate headings, and listed in the table of contents. Obviously, the appendix should not be made a dumping ground for miscellaneous or irrelevant materials that are placed there as a convenient method of disposal.

Index.—In view of the fact that the typical reader of this article is not preparing his report or thesis for publication, a detailed discussion of the index will not be attempted at this time. As a

[3] Harry J. Baker, "The Fetish of Statistics," *Journal of Educational Research*, XXXIV (February, 1941), 458-59.

rule, the typed manuscript depends on a detailed table of contents rather than an index for the guidance of the reader in locating desired information.

The worker who expects to prepare an index for a published report may examine well-indexed books as illustrations of form. Some publications with heavy bibliographical content compile separate author and subject indexes. The usual plan in preparation of an index is to transfer from page proof to cards the key topics, names, and authors (only one item per card) with the pages indicated. Cards relating to the same topic or author can be combined so as to transfer the page notations to a single card under the appropriate heading. The person inexperienced in this type of work should be cautioned that effective indexing is not as simple as it sounds and that, unless willing to expend the necessary energy in acquiring this skill, it may be better to employ a specially trained worker to prepare the index. The publisher usually has such a specialist available.

Style in Writing

This brief discussion of style must leave to the handbooks of English usage and of manuscript writing the details of rhetoric, grammar, paragraph construction, sentence structure, punctuation, and spelling. The graduate student has covered these areas in high-school English classes, and usually has taken instruction in composition at the college level, although all too frequently he has not acquired the skill necessary to write an accurate and effective report.

Diction, the choice and use of words, is essential to precision of statement and to clarity of vocabulary and technical terminology. Variety in the choice of words and judicious use of synonyms prevent monotony of expression. For assistance in promoting lucid diction, the available handbooks and dictionaries should be consulted.

Phraseology, the arrangement of words in groups, is another important problem in writing, one that is fully treated in the handbooks of English usage. Variation in the structure and length of clauses, sentences, and paragraphs makes for a more readable style.

Style is a more inclusive term than diction or phraseology, and is concerned with certain more general characteristics of writing, particularly individuality of expression. The technical or professional report is not an oration or a literary essay; therefore, its style should be natural, straightforward, and business-like. This means simplicity, clarity, and directness rather than journalistic writing or literary embellishments. In the absence of real substance, no amount of ornateness, flowery language, or rhetoric can produce more than a literary clothes horse. To be avoided are: trite or hackneyed phrases, overworked literary illustrations or proverbs, slang, colloquialism, titles and degrees, the first person, and the editorial "we." The inexperienced writer should be reminded, however, that there is plenty of room for exercise of whatever skill in language he possesses. There is no obligation to be dull or monotonous, and the research report is no better because it is heavy reading.

It is true that able scientists have varied greatly in style of writing.[4] Ebbinghaus produced work in Germany that was scientifically rigorous, yet lucid, interesting, and readable, with a human personality revealed through his pen, as was true of the books of William James in the United States. On the other hand, Wundt overwhelmed his reader with a host of facts, arguments, and dicta. With James, and probably many others, effective scientific writing has been a matter of rewriting rather than a sheer gift or a sudden inspiration. James said that on the average he rewrote every page of his famous Psychology at least six times.[5]

Style varies in certain respects with the type of research, according to whether the historical, experimental, survey, case, or some other method is used. Extended analyses of research approaches sometimes include treatments of the special problems of reporting represented; for example, the case method and the style of the case record.[6]

Concluding Statement

The preparation of the report represents the communicatory stage in research, in agreement with Thoreau's aphorism that "it takes two to speak the truth; one to speak and one to listen."

[4] E. G. Boring, *A History of Experimental Psychology* (New York: Century Co., 1929), pp. 383-84.
[5] H. C. Hockett, *Introduction to Research in American History* (New York: Macmillan Co., 1932), p. 137.
[6] Gordon Hamilton, *Social Case Recording* (New York: Columbia University Press, 1936), pp. 114-37.

This is a stage in the progress of the research project and not a process separate from the earlier steps in problem solving. The research report is typically exposition rather than description, narration, or argumentation.

The materials of an extended report, such as a thesis, may well be organized into the major divisions described in this article. The logical arrangement and structure of these divisions depend on the care with which the outlining and notetaking have been done.

References in the form of footnotes and bibliographies are widely used in the educational, psychological, and social sciences, yet careless practices in citation are numerous, with even more regrettable instances of unmistakable plagiarism.

The preparation of an adequate research report takes time. "Good literature is not written, it is rewritten."[7] The style should be natural and straightforward, without exaggerated rhetoric or unnecessary literary artifices. A report of real substance requires only simplicity, clarity, and directness to be effective. It should be added, however, that there is every reason to exercise any skill in language one possesses; there is no premium on dullness or monotony in scientific writing.

Appraisal should attend each stage of problem-solving, including the process of application of findings or implementation. It probably is impossible to reduce the background and insight for evaluation of research to any rule-of-the-thumb check list of criteria.

Scientists and scholars have a grave responsibility to report their studies, to apply their knowledge to the crucial problems of society, and to use their wisdom for the benefit of mankind. On the proper relationship between science, technology, implementation, society, and a system of values depend the welfare and even the very existence of science, research, and democratic society.

[7] C. L. Fry, *The Technique of Social Investigation* (New York: Harper and Bros., 1934), p. 202.

Comic Strip Magazines

"The best way to rid the schools of the plague of trashy comic strip magazines is to put them in a class with Shakespeare. Require them. Assign them. Criticize them. Kill them."—*Clearing House,* a journal for modern junior and senior high schools.

Applied Research

(Continued from page 177)

criterion in statistical research, as most of the reports seem to imply. The main concern should be how large and how important is the difference and in what direction, and the issue of reliability should be only a subsequent and secondary consideration.

In summary, we have pointed out in this article that there have been two main sources of educational lore: the accumulation of the results of uncontrolled experience and observation which is often called "common sense," and the outcomes of controlled observation which we call scientific research. It is our ambition to extend research into our field as far and as rapidly as feasible. It is suggested that practical schoolmen apply the techniques of scientific research to their own problems to get findings useful to themselves. This will sometimes call for the use of some statistical controls but these need not be elaborate or difficult. It is this body of guarded generalizations obtained by practical schoolmen for their own guidance that is likely to prove to be our most fruitful science of education.

Elementary Statistics

Elementary Social Statistics is a beginning textbook in statistical methods which Thomas C. McCormick, professor of sociology, University of Wisconsin, prepared primarily for students "who expect to become professional sociologists," but which will be useful to those beginning research in other social sciences as well. Sociological material is used for textual illustration and in the exercises following each chapter. Part I is devoted to Statistics in Social Research. The chapters of Part II, Statistical Methods, deal with tabulation of frequency distributions; graphs; averages; measures of deviation and partition; combination, probability, and the normal distribution; gross relationship between two factors—simple linear quantitative correlation and nonquantitative correlation; sampling; significance of differences; and time series analysis. The appendix contains tables of "Area and Ordinate of the Normal Curve"; "Chi-Square"; "Binominal Coefficients"; "Values of the Correlation Coefficient for Different Levels of Significance"; "Values of z for Given Values of r"; "Squares and Square Roots"; "Five-Place Common Logarithms of Numbers."

Essentials of Good Research

By J. V. BREITWIESER

IN 1936 Carter V. Good, A. S. Barr, and Douglas E. Scates brought out their *Methodology of Educational Research* published by the D. Appleton-Century Company. In the preface of this book they say: "The point of view of the authors is that competent educational workers should participate in the solution of professional problems, either as consumers or producers of research."

The above statement could well be used as representing the attitude of Phi Delta Kappans toward research. The methodology of research and thesis writing in the field of education has been the subject of several books culminating in the comprehensive treatise alluded to in the opening sentence of this article. The educators who have received training in the graduate divisions of our schools of education have all been referred to these guidebooks (many of which are listed in L. J. Brueckner's bibliography, pages 186-88) and would have no difficulty in recognizing the essentials of good research. A brief article in the PHI DELTA KAPPAN can do little more than summarize these essentials and perhaps re-emphasize what to look for in good research.

The first step in good research is the clear statement of a problem in such a manner that it can easily be put in question form. Such a subject or problem should arise directly out of actual educational needs or situations. There should be a clarity of purpose or objective in the statement of the problem that will permit no confusion. If any terms are used in a special or limited sense such terms should be clearly defined.

The second characteristic of good research is the use of the proper techniques or procedures for the solution of the particular problem. It is in the development of method that the ingenuity of the researcher is often revealed. The technique may involve novel statistical method, a unique experimental setup, a different manner of measurement, or a new source of data. Whatever the method, it must be the one crucial procedure that will solve the problem.

A third essential of good research is adequacy of data. One must always ask himself, "Have enough cases been examined? Are the data representative? Do the data indicate a fair sampling? Have the measures of deviation become static? Was the factor for which a measurement was made the factor for which the measurement was sought? Were the measures exact enough for the particular situation?"

A fourth essential of good research is accuracy and clearness of interpretation and conclusions. Are the conclusions too general? Is there premature generalization? Are the conclusions amply and incontrovertibly supported by the data?

Finally good research, especially in education, should carry with it the suggestions of the application of the results of the investigation. The researcher can often think of more uses for his findings than the casual reader. It is the application or implication of research that is too often neglected in the reports.

School men might be reminded that research on the motor-sensory types of reactions has been cited as a part of one of the ten great experiments in psychology, yet very few educators apply the findings in the teaching of typewriting and piano playing, in training of athletes for track events, or in development of other abilities involving motor skills.

Good research must always be presented clearly, concisely, and in connected form, the three "c's" of good research reporting. In these reports the consumer of research should be borne in mind, as well as fellow researchers.

In closing, may all good Phi Delta Kappans be reminded of the admonition in our *Ritual,* that "research is one of our guiding principles and the necessity for it is enjoined upon us collectively and upon you individually."

★ *J. V. Breitwieser is Dean of the School of Education of the University of North Dakota, at Grand Forks, N. D. He is a member of Phi Delta Kappa and is now serving as District Representative of District IV.*

Research in Education

By LEO J. BRUECKNER

THIS bibliography includes the kinds of references which are of practical value to the beginner in research, as well as to others more advanced in the practice of research. The bibliography includes, in addition to references on the basic methods of research, references to the various aids available to the research worker, including books on usage in writing, devices for graphical presentation of data, and instruments of the various kinds of appraisal. The writer urges that all research workers make extensive use of the authoritative critical reviews of research procedures in the *Review of Educational Research,* published under the auspices of the American Educational Research Association.

I. General Procedures

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2. Almack, John C. *Research and Thesis Writing.* Boston: Houghton Mifflin Co., 1930, Pp. 310.

3. Barr, A. S. *Introduction to the Scientific Study of Supervision.* New York: D. Appleton-Century Company, 1931. Pp. 399.

4. *——— and Rudisill, Mabel. *An Annotated Bibliography in the Methodology of Scientific Research Applied to Education.* Bureau of Educational Research Bulletin, No. 13. Madison: University of Wisconsin, 1931. Pp. 129.

5. Binkley, R. C. *Manual on Methods of Reproducing Research Materials.* Ann Arbor, Mich.: Edwards Brothers, 1936. Pp. 207.

6. Brinton, Willard C. *Graphic Presentation.* New York: Brinton Associates, 1939. Pp. 512.

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9. *Good, C. V., Barr, A. S., and Scates, D. E. *The Methodology of Educational Research.* New York: Appleton-Century, 1936. Pp. 882.

10. *"Methods of Research in Education," *Review of Educational Research,* 9 (December, 1939), 451-672.

* The starred references contain detailed discussions of the basic principles underlying the methods of research in the following sections. To save space these titles will not be repeated in other sections of the bibliography.

★ *Leo J. Brueckner is Professor of Education, University of Minnesota, Minneapolis. He is a member of Phi Delta Kappa.*

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12. ———, Hamilton, Thomas F., and Smith, Vivian T. *Locating Educational Information in Published Sources.* Bureau of Educational Research, Bulletin no. 50. Urbana: College of Education, University of Illinois, 1930. Pp. 142.

13. Mudgett, Bruce D. *Statistical Tables and Graphs.* Boston: Houghton Mifflin Co., 1930. Pp. 194.

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16. **Scientific Movement in Education.* Thirty-seventh Yearbook of the National Society for the Study of Education, Part II. Bloomington, Ill.: Public School Pub. Co., 1938. Pp. 495.

17. Turabrian, Kate L. *A Manual for Writing Dissertations.* Chicago: University of Chicago Bookstore, 1937. Pp. 61.

18. Walker, Helen, and Durost, Walter U. *Statistical Tables.* New York: Teachers College, Columbia University, 1936. Pp. 76.

19. *Whitney, F. L. *The Elements of Research.* New York: Prentice-Hall, 1937. Pp. 336.

II. Survey Method

1. Barr, A. S., Burton, W. H., and Brueckner, L. J. *Supervision.* Boston: D. Appleton-Century Co., 1938. Pp. 981.

2. Bingham, W. V. *Aptitudes and Aptitude Testing.* New York: Harper and Brothers, 1937. Pp. 390.

3. ——— and Moore, B. V. *How to Interview.* New York: Harper and Brothers, 1931. Pp. 320.

4. Brueckner, Leo J. *Diagnostic and Remedial Teaching in Arithmetic.* Philadelphia: John C. Winston Co., 1930. Pp. 341.

5. Caswell, Hollis L. *City School Surveys.* Contributions to Education, No. 538. New York: Teachers College, Columbia University, 1939. Pp. 130.

6. Cooperative Study of Secondary School Standards. *Evaluation of Secondary Schools; General Report.* Washington: The Study, 1939. Pp. 526.

7. "Educational Tests and Their Uses," *Review of Educational Research,* 5, no. 5 (Dec., 1935), 442-521;

8, no. 5 (Dec., 1938), 495-587. Extended bibliographies of books and articles dealing with the development and uses of educational tests.

8. Freeman, Frank N. *Mental Tests.* Boston: Houghton Mifflin Co., 1939. Pp. 460.

9. Hawkes, H. E., Lindquist, E. F., and Mann, C. R. *The Construction and Use of Achievement Tests.* New York: Houghton Mifflin Co., 1936. Pp. 496.

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14. National Education Association. Research Division. "The Questionnaire," *Research Bulletin,* 8 (Jan., 1930), 1-51.

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† For advanced students.

Public Relations Tip

The blank period of 15 to 45 minutes that precedes the hoisting of the curtain at a school performance finds the audience with time on their hands—time to read and reflect upon everything that is on the program. More and more schools are capitalizing on this time by including on the printed program, in addition to the procedure of the performance, carefully written notes that explain the history and purpose of the organization that is responsible for the evening's activities.

The notes can briefly tell the story of the personnel of the acting group and how the activity contributes to the development of school and student. In short, it should tell the story behind the program.

School people should use every method available to clarify and interpret the activities of the schools. They must try to anticipate the questions that are forming in the public's mind and proceed to answer them. This program method affords a practical opportunity. —Kansas City, Kansas, November, *Bulletin*.

Needed Educational Research

By CARTER V. GOOD

SPACE LIMITATIONS and the factor of timeliness make it necessary to limit this bibliography, with one or two exceptions, to the period, 1936-41. The scope of the references is somewhat broader than the field of education is sometimes defined; some of the items deal with needed research in psychology and in the social sciences. However, it probably requires no comment at this time to point out the close relationship between education and the problems of psychology, sociology, social work, and other social science fields.

It is granted that some of the problems suggested for investigation will have been at least partially solved by the time this bibliography appears in print. Only a careful survey of current educational literature can reveal the research completed prior to any given date. The research topics listed in the references should not be viewed as specific statements of carefully delimited studies, but as raw materials for use in formulating problems.

For the period prior to 1936, a comprehensive bibliography on needed research and summaries of many of the references may be found in *The Methodology of Educational Research,* by Carter V. Good, A. S. Barr, and Douglas E. Scates (New York: D. Appleton-Century Co., 1936), pp. 88-103, 777-855.

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Suggestive Topics for Immediate Research

Edited by ARMIN A. MANSKE

THIS LISTING is a sample of the many problems in education for which there is an immediate need of study and solution. The items for this section were secured from a representative group of students and specialists, who were requested to submit current problems in education that are tangible for research purposes.* Though not all branches of the field are adequately covered in this listing, it, nevertheless, suggests to the research worker those phases of educational thought and practice which are paramount in the minds of students and which should provide interest and effort for constructive individual and cooperative research endeavor.

In addition to this listing of topics, the interested research worker should refer to the extended bibliography of other listings by Carter V. Good, published in this issue of THE PHI DELTA KAPPAN, pp. 189-91.

I. General Administration, Organization, and Supervision

1. Definition of the responsibility of the federal government, the state governments, and the local governments in the support and control of education.
2. Analysis of federal participation in education during the 1930's.
3. Incorporation of federal emergency educational institutions into the regular public school framework.
4. Evaluation of the educational effectiveness of the national emergency program of education.
5. Critical analysis of accrediting agencies of colleges and secondary schools.
6. Potential effect of the national defense program on school population.
7. Drafting a model code of school laws for state legislatures to adopt.
8. Security of permanent school funds in the various administrative units having such funds.
9. Effect of centralized state administration on supervision in the local school districts.
10. Creation of an independent state branch of education by constitutional enactment, free from legislative enactment and executive control.
11. Comparative study of services rendered by state departments of education.

* At the request of the editor of THE PHI DELTA KAPPAN, chapter officers and a selected group of educators submitted topics for needed research. Although the request for topics was addressed to a limited number, the returns have far exceeded expectations with the result that the published list is highly selective in order to keep it within the space available.

★ *Armin A. Manske is a Research Assistant in the School of Education, University of Chicago. He is a member of Phi Delta Kappa.*

12. Criteria for determining the distribution of state funds to the various educational institutions.
13. Case study of the experience of selected states in school district reorganization.
14. Larger units of school administration, based on a pattern of social, political, economic, cultural, and geographic factors.
15. An ideal administrative unit that will make possible the achievement of a complete educational program.
16. Techniques to determine the movements of school population within a large city during intercensal periods.
17. The effects of rising costs on sources of school revenue and budget allotments.
18. The county as a primary unit of school administration.
19. Legal provisions concerning the use of regular transit services by urban school children.
20. Establishment of a central purchasing agency by small local school districts.
21. Relative effectiveness of 8-4; 6-3-3; and 6-6 plans of school organization.

II. Institutional Administration, Organization, and Supervision

22. Dispersion of administrative responsibilities in educational institutions and its effects on efficiency, control, and remuneration.
23. Student financial outlays required or virtually required as incidental to attendance and full participation of pupils in free public schools.
24. Reducing class size with a minimum increase in school budgets.
25. The optimum length of school day and class period in the secondary schools.
26. Experiments on homogeneous *vs.* heterogeneous grouping.
27. School organization for post-war rehabilitation training of defense workers.
28. Effectiveness of various types of school reports to parents.
29. The trends in work-study programs of high schools.
30. Scientific approach to the problems of lighting, heating, and ventilating in school buildings.
31. Analysis of the advertising claims for school supplies.
32. Promotional practices in elementary schools.
33. Status and possibilities of public nursery education.

34. Practical improvements in working conditions for teachers.

35. Determining teacher load on the basis of subject matter.

36. Meeting conflicts due to social status of pupils in educational institution.

37. Analysis of the reasons why successful pupils leave secondary schools before their graduation.

38. A formula for determining the proper allocation of book funds to different departments in secondary schools.

III. The School Program

39. Articulation of primary, secondary, and college courses in subject matter fields.

40. Evaluation of recent curriculum changes in terms of demonstrable results.

41. Extent of teacher, pupil, and community participation in the development of curriculum materials.

42. Effects of rest periods and other measures designed to reduce the outlay of pupil energy.

43. Child ideas with reference to the field of social studies in the elementary schools.

44. Diagnostic studies of vocabulary growth in school subjects.

45. Systematic plan of training in fundamentals in senior and four-year high schools.

46. Influence of college preparatory requirements on high school graduation requirements.

47. Effectiveness of a continuous program of science in comparison with one in which the subject is offered alternate years.

48. English abilities needed for success in college.

49. Reading materials for use in high school remedial and developmental work.

50. Place of reading instruction in secondary schools.

51. Formulation of a Social Studies sequence.

52. Evaluation of current citizenship training programs.

53. Techniques for thrift education in senior high schools.

54. Weekday religious instruction on public school time.

55. Constitutionality of religious education in public schools.

56. Collaboration between religious institutions and public educational institutions.

57. Utilizing the values of religion in the classroom without violating the principle of separation of church and state.

58. The place and value of foreign language teaching.

59. Investigation of success of foreign language teaching through films and radio.

60. Measured values of an annual complete health examination.

61. Safety and sanitary principles in Physical Education activities.

62. Practices and values of inter-school athletics in secondary schools.

63. Grade placement of activities in Physical Education.

64. Incorporation of extracurricular activities in the regular school program.

65. Adaptation of industrial arts courses to defense needs.

66. The unit shop *vs.* the general shop in vocational education.

67. Technical training for rural youth in fields other than agriculture.

68. Historical and current practices in providing work experience.

69. Evaluation of the Smith-Hughes vocational agriculture program.

70. Provisions for the possible pattern of military or semi-military training as a permanent part of educational institutions.

IV. Methods of Teaching

71. Comparison of the effectiveness of manuscript method with the traditional method of teaching writing.

72. Comparisons of word recognition with the phonetic method for effectiveness in teaching reading to beginners.

73. Present status of investigation and results on remedial reading.

74. Merits of specific as opposed to general approaches in remedial reading.

75. Techniques for the improvement of reading of secondary school students.

76. Use of the library in the elementary school.

77. Examination of methods used in teaching fundamental skills in terms of student achievement.

78. Reasons for the indifference to science of secondary students who have had science in elementary schools.

79. Effectiveness of methods used for the correction of the physical defects found in pupils during health examinations.

80. Time and place of excursions in elementary schools.

81. Value of motion pictures with recordings as opposed to silent pictures with teacher comments.

82. Teaching skills in typing, art, and industrial arts through visual aids.

83. Modifying secondary school methods to care for pupils with nonacademic interests.

84. Mechanization of the educative process by means of motion pictures, radio, etc.

85. Extent, purpose, and value of emulation in public schools.

86. Criteria for effective use of textbooks by secondary school teachers.

87. Utilizing the home and public library for out-of-school study by secondary pupils.

V. Guidance and Student Personnel

88. Pupil discipline in Progressive secondary schools.

89. The use of subject fields in the counseling of students.

90. Adapting proven methods of individual vocational guidance to group situations.

91. Significance of personality tests at the elementary and secondary levels.

92. Relation of guidance to the basic or core curriculum.

93. Validity of measures employed in predicting success of students entering institution of higher learning.

94. The principal's recommendation as a criterion for admission to colleges and universities.

95. Evaluation of the guidance program in terms of the responses of well- and poorly-adjusted graduates.

96. Effectiveness of the continuous follow-up program of graduates in terms of promotions and adjustments.

97. Value of career courses in high schools.

98. Relation of age to vocational interest in students of technical high schools.

99. Coordination and integration of guidance techniques.

100. Rectifying social, economic, and vocational ambitions of students with prevailing conditions and work opportunities.

VI. Human Development

101. Discovering and utilizing the special abilities of low intelligence pupils.

102. Methods of determining emotional maturity in beginning first grade pupils.

103. Generalization of the clinical approaches to the problems of child health.

104. Relationship between specific physiological deficiencies and abilities to learn efficiently.

105. Characteristics of efficient hearing for educational purposes.

106. Development of good visual ability in students.

107. Recreational activities conducive to mental hygiene values.

108. The effect of war psychology on students conditioned for activity in times of peace.

109. Relative merits of "delay" and "systematic stimulation" in utilizing the concept of maturity levels for learning.

110. Amount and permanence of transfer of training under a variety of school and out-of-school conditions.

111. Determining the higher thinking processes of youth in terms of their interests and abilities.

112. Changing pattern of home and school responsibility in child development.

113. Current considerations for the superior student in secondary schools.

114. Providing for individual differences in a homogeneous group of students.

115. Character training situations that arise in Physical Education activities.

116. Hero worship of students at various age levels under controlled conditions.

117. The personal-social problems of adolescents in which teachers should assist.

118. Specific factors in the classroom which affect the development of children's behavior patterns.

119. Influence of the teacher's social, civic and religious attitudes upon different-aged groups of students.

VII. Tests and Measurements

120. Influence of expected examinations upon students of different emotional patterns.

121. Reliability and validity of achievement and intelligence tests when adapted to machine scoring.

122. Objectifying the subjective grades of teachers.

123. Patterns of mechanical aptitudes that lend themselves to measurement.

124. Utilization of techniques for measuring attitudes in the educational situation.

125. Objective measures of interest and persistence that lend themselves to mass student use.

126. Techniques to determine the effectiveness of vicarious experiences.

127. Level of mental ability required for learning various school subjects in the secondary schools.

VIII. Higher Education

128. Areas of cooperative endeavor between high schools and colleges.

129. Qualitative student requirements of admission to colleges.

130. Place of the local public junior college in an adult education program.

131. Emotional and attitudinal independence of students who attend colleges away from their home environment as compared with those who live at home.

132. College curricula appropriate for defense training and subsequent permanent employment.

133. Extent of two-year terminal curricula in liberal arts colleges.

134. Extent of vocational education in junior colleges.

135. The place of fraternities, sororities, and honor societies in higher education.

136. Administrative provisions for students entering institutions of higher education during the academic year.

137. Causes and remedies of failures and drop-outs among college students.

138. Development of a work-book in college courses.

139. Changing social attitudes of students as a result of college training.

140. Conflicts reported by students of different ages between religious beliefs and scientific college instruction.

141. Personnel program for graduate students at universities.

142. Comparative study of curricular modifications in colleges.

143. Matched-group comparisons of achievement in public junior colleges, private colleges, and state universities.

144. Effectiveness of the unitary control of higher education in states.

145. Trends in the duties and responsibilities of lay boards controlling universities.

146. Basic common information to be included in cat-

alogs and other official publications of colleges and universities.

147. Economy and educational effectiveness of taking students to local junior colleges in buses.

IX. The Profession—Education

148. Administrative techniques for reducing tension and increasing morale in school staffs.

149. Suggested code for teacher-certification laws.

150. Causative factors of the relatively small percentage of men teachers in the elementary field.

151. Effect of national defense on the quality of the teaching force.

152. Criteria by which public school teachers receive and secure their appointments as teachers.

153. Bargaining rights of teachers under state labor laws and laws regulating contracts.

154. Procedure for estimating the cost of living of teachers for purposes of salary schedule construction.

155. Effects of tenure and teacher retirement systems upon teaching in schools.

156. Effects of fatigue and other factors upon teaching efficiency.

157. Comparison of the mental health of teachers with that of other groups of like age, sex, income, and education.

158. Specific items taught in courses of educational psychology that are used by teachers in service.

159. Fundamental attitudes of superintendents and principals toward teachers and pupils—and their derivation.

160. Qualifications of business managers in public school systems.

161. Overcoming lag between theory-research and practice in education.

162. Formulating an American philosophy of education from the composite contributions of the foremost professional thinkers.

163. Influence of the United States on education in Latin American countries during the 19th and 20th centuries.

164. The history of education in each of the Latin American countries.

165. The function of the professional fraternity in education.

X. Teacher Training

166. Selection of individuals for training in the teaching profession.

167. Trends in teacher training institutions with regard to the emphasis placed upon method and content.

168. Minimum amount of professional training necessary for competent teaching.

169. Analysis of the nature of courses called Student Teaching or Practice Teaching.

170. Matching professional education with work opportunities.

171. An approach toward the effective orientation of prospective teachers.

172. Comparison of apprentice teaching in laboratory schools with cadet teaching in public schools.

173. Preparation of students for rural teaching.

174. Requirements in professional training of high school principals.

175. Effectiveness of summer workshops in teacher improvement.

176. Nature, purpose, and value of county teacher institutes in the training of teachers.

177. The professional education of college professors.

178. Nature of in-service supervision for the improvement of college instruction.

XI. Adult Education

179. Organization of adult education programs in the states.

180. Trends in the offerings of adult education programs.

181. Extent of adult education under public school auspices.

182. Effectiveness of adult education under the federal emergency program.

183. Experiments in the organization of community councils.

184. Matching adult education offerings with needs and capacities of students.

185. Utilization of recreational activities in an adult education program.

XII. Miscellaneous

186. Influence of radio and movie habits on the reading habits of the American people.

187. Relation of rural educational programs to social and economic life of the farm population.

188. A transient farm labor service under governmental auspices for rural youth.

189. Relation of farm tenure to school progress in the southern states.

190. Reader interest in current educational literature.

191. Basic reasons for the unsympathetic attitudes of citizens toward the improvement of public education.

192. Improvements needed in the mechanical make-up of textbooks.

193. The financial support of educational periodicals.

194. Extent of educational counseling in the administration of the radio, movie, and press industries.

195. Educational features in urban social service administration.

196. Nature of rehabilitation programs in penal institutions.

197. The educational purpose of women's organizations.

198. Analysis of decisions in juvenile courts and their implications to the educational program.

199. The influence of ten-cent "comic" books on children in the elementary school.

200. Food and adulteration analysis of "cheap" one-cent candies sold, with "prizes" as inducements, to school children.

201. The function, value of, and need for The Phi Delta Kappan as a professional journal.

Research Reported by Districts

Research in District One

Members of Phi Delta Kappa in District I have been active in the field of educational research. Many have completed or are completing theses for the master's or doctor's degree. Others have been working on projects covering a variety of fields. Letters were sent to each chapter and to each state coordinator, and it is on the basis of these replies that the following report is made.

Idaho: L. A. Thomas, state coordinator, is planning a state-wide project to get under way the first of the year. This is to be a health survey, similar to the one now being carried on in Washington under M. J. Blaha.

Montana: George H. Leger, state coordinator, reported a study of Phi Delta Kappa membership in Montana, which is being made by Sheldon E. Davis of Dillon.

Oregon: Chi Campus Chapter, University of Oregon, reports research on fourteen topics, representing various areas of interest, a number of which deal with educational problems in the state.

Washington: Nu Campus Chapter, University of Washington, reports some thirty-two research topics which are in progress. Frederick E. Bolton and John E. Corbally, of this chapter, are the authors of a textbook entitled *Educational Sociology,* which was recently published by the American Book Company. At Alpha Gamma Campus Chapter, State College of Washington, Pullman, there are twenty-one research projects in progress dealing with educational topics. It is with regret that we cannot publish the names of all the research workers and the subjects on which they are working, due to the limitations of space in this special issue.—JOHN E. CORBALLY, *District Representative.*

Research in District Two

The research activities and research program in this district may be classified, for the most part, in three divisions:

1. *State and county research activities:* In this division are numerous research activities carried on by state and county departments and officials. The products of these research studies appear usually in the form of annual statistical reports for the information and guidance of school districts; studies of trends with respect to school needs and activities; studies with respect to personnel training, certification, supply and demand, compensation, tenure, turnover, and retirement; studies basic to the preparation and development of curriculum programs and materials; studies of school district costs and administration.

2. *School district research activities:* Many local school districts today maintain a research department, a director of research, or a research assistant devoting full time to making and directing studies of particular concern to the local district. Supplementing these centralized research activities of school districts we find many studies being carried on by individuals within schools and departments. The problems studied in school districts may be classified under the same general heading as those studies carried on by state and county departments. Many of these studies would be of distinct value to others engaged in the same type of work, but, on account of their purely local character, they are seldom available except as they appear occasionally in the form of published articles in periodical literature.

3. *University and school of education research activities:* Research activities in this classification fall ordinarily into two groups:

a. Studies by members of the university staff.

b. Studies by individual students carried on as projects in the program for the master's or doctor's degree.

Most of the studies in the first classification are published and may be located through the usual bibliographies and indexes. Studies in the second classification ordinarily are not published in full, but there is an increasing tendency on the part of the universities to publish abstracts of doctor's dissertations and to publish annotated lists of master's theses available in manuscript form. For the most part, the studies appearing in the above classification deal with practical professional problems and constitute a valuable source of information to

teachers, administrators, and school of education. The range of these research activities, however, is so broad that a complete tabulation of all of these studies would contain so many items that perhaps nine-tenths of them would not be of immediate concern to any one individual. This fact indicates a need for some central clearing house where references to particular phases of research in education can be made available in terms of the individual needs of the inquirer.

At the present time the major research activities being carried on by schools of education are located in those universities in district number two where active chapters of Phi Delta Kappa are now established. These universities are Stanford (Delta Chapter), California at Berkeley (Lambda Chapter), Southern California (Alpha Epsilon Chapter), Arizona (Alpha Zeta Chapter), Claremont Colleges (Alpha Omicron Chapter), University of Utah (Alpha Upsilon Chapter) and California at Los Angeles (Alpha Chi Chapter). Lambda Chapter reported that it has on the program for this current year the bringing up to date of the abstract of doctor's theses prepared about eight years ago by Arnold E. Joyal. Alpha Epsilon Chapter is including in its program bridging the gap between the volume of abstracts on master's theses and doctor's dissertations prepared several years ago by Frederick J. Weersing and the new series of University of Southern California Chronicles, which includes abstracts of all dissertations and an annotated bibliography of master's theses. Alpha Omicron Chapter indicates that it has a special research project under way on arithmetic.

One activity of the Phi Delta Kappa Research Committee might be the preparation of a list of sources indicating specifically where the titles and abstracts of all research studies in education might be found; namely, research studies by state and county departments of education, research studies by school districts, and the research activities of university departments and schools of education. The Research Committee naturally would take into account the present activities of the United States Office of Education and the National Education Association who report annually a classified list of research reports and activities compiled from information furnished to them directly from the universities.—OSMAN R. HULL, *District Representative.*

Research in District Three

There are doubtless many more research activities being carried on by chapters in the Third District than we shall be able to report, since in many cases we have been unable to secure the information desired. Several of the activities reported are significant and worthy of attention.

Mu Campus Chapter is cooperating with other organizations and individuals at the University of Texas, Austin, in the publication of theses as a means of making research findings available for wider distribution and usefulness to school men throughout the United States.

Alpha Delta Campus Chapter, Kansas State College, has just published its recently completed research project, *Abstracts of Masters' Theses in Education; Approved by Kansas State College, 1915-1940.* Chapter members prepared most of the abstracts directly from the theses. The purpose, procedure, and findings of each thesis are precisely presented. A brief list of titles of theses in home economics, which have been abstracted elsewhere, is appended. The paper bound, 130-page book can be obtained from the secretary of the chapter for fifty cents per copy.

Theta Field Chapter has undertaken the promotion of special research studies by the fraternity this year, under the direction of a special committee consisting of Richard A. Ball, Francis M. Gregory, and J. F. Wellemeyer. At the request of the chapter president, they submitted abstracts of their own studies. In addition, the committee is making a report of special studies which have been made or are being made by members of the chapter.

Francis Gregory has reported on his study entitled, "Some Aspects of a Work Experience Program."

Richard A. Ball has presented an abstract of his dissertation entitled, "A Description of the Northeast Experimental Junior College, Kansas City, Missouri."

J. F. Wellemeyer reported on a research project in secondary education which involved the study of the outcomes of secondary education with particular reference to guidance and curriculum adjustments.—WILLARD N. VAN SLYCK, *District Representative.*

Research in District Four

The research activities of Phi Delta Kappans in District IV have centered around the graduate schools of the various universities. The reports of the various chapters have been condensed and are presented, herewith. Some of the chapters have not reported.

The research efforts of the members of Alpha Theta Campus Chapter, University of North Dakota, are represented by a list of thirteen master's degree theses for 1941, many of which deal with specific problems in the state of North Dakota.

Epsilon Campus Chapter, University of Iowa, sent a five-hundred-word summary for each of nine doctoral dissertations which were completed by members of the chapter between June, 1940, and August, 1941. The chapter also submitted a list of the theses presented at the university in 1940 and 1941 by candidates for the degrees of master of education, master of arts, and doctor of philosophy.

The research committee of Alpha Sigma Campus Chapter, University of Denver, reports: (1) The committee is preparing abstracts of theses which they hope to publish. (2) They are conducting an investigation into the possibilities of a functional approach to mathematics through science, through Arthur Jackson. The report was recently published in the *Mathematics Bulletin* of the mathematical section, Eastern division, of the Colorado Education Association. (3) In connection with the teacher education inquiry, there has been an analysis and evaluation of classroom learning activities within the Denver public schools. (4) Research in connection with the hospitalization insurance plan of the Colorado Education Association was also reported. (5) In connection with the Summer Workshop of the University of Denver some "practices of promise in the junior high schools" of Denver were compiled.

Omicron Campus Chapter, University of Nebraska, submitted a list of eight theses in the field of administration which had been completed by its members; nine master's theses in the field of secondary education and two doctor's dissertations in the same field completed by members of the chapter were also noted.

The research report of Beta Delta Campus Chapter, University of Colorado, was prepared by a special committee, composed of Harl R. Douglass, Head of Department of Education; Robert A. Davis, Professor of Education; and Lindley J. Stiles, Chairman, Director of Curriculum and Guidance, Boulder Public Scools. The committee reports that recent research completed or in progress under direction of members of Beta Delta Chapter includes studies of a range of subjects from NYA in Colorado to elementary school principalships. The committee sent brief descriptions of six selected research projects as well as a list of all research projects which have been completed at the University of Colorado during the past two years.—J. V. BREITWIESER, *District Representative.*

Research in District Five

This account of research in District V is based on reports from two chapters in the district so, as a result, it mentions only a small part of the research which is being carried on throughout the district.

The Indiana Council on Education is carrying on an investigation which will reveal facts as to the level of achievement in the fundamental subjects of present-day pupils in comparison to the achievement of pupils of former years.

Alpha Campus Chapter, Indiana University, reported eleven research studies completed in connection with the granting of the doctor's degree between October, 1940, and October, 1941, and thirteen projects now under way in connection with the doctor of education and doctor of philosophy degrees.

Members of Alpha Zeta Field Chapter, Evansville, Indiana, indicated several research studies being carried on by their members. They mention the ambitious cross-section analysis of public schools in the United States which was begun about three years ago by the Civic Education Service of Washington, D. C., which publishes the *Junior News Review,* the *Weekly News Review,* and the *American Observer.* A progress report has been issued, but the study is continuing for an indefinite period.

A former officer of Alpha Campus Chapter, Burley V. Bechdolt, is now director of research for the Indiana State Teachers Association, Indianapolis. The chapter submitted a list of research is-

sued by the association during the last year and a half, which includes more than twenty research bulletins, circulars, leaflets, bibliographies, and miscellaneous material, as well as nine articles published in the *Indiana Teacher* in the "Shall We Speak for Education" series and thirteen other releases published in the same periodical. Most of the studies deal with assessed valuation, taxes, school expenditures, population studies, teachers' salaries, training, experience of teachers, and administrative problems.

The state-wide organization of Phi Delta Kappa in Indiana, which is organized into twelve districts, is constantly carrying on a program of practical research, with particular reference to needed legislation within the state.—FREDERICK NEEL, *District Representative.*

Research in District Six

Although each chapter in District VI was contacted with reference to a report covering current research, only three responded.

Xi Campus Chapter, University of Pittsburgh, sent in a list of doctor's dissertations in education written at the University of Pittsburgh during the years 1939 to 1941. The list comprised twenty-two dissertations written in 1939, twenty in 1940, and twenty-two in 1941, covering, as a whole, a wide range of educational topics.

Theta Campus Chapter, Cornell University, supplied abstracts of six selected dissertations dealing with the measurement of interest and of utility in college personnel work, a study of the school activities and achievements of rural students of low normal intelligence, factors which have a bearing upon the prediction of success in shop courses in technical and industrial schools, a comparison of rural and urban pupils in the same urban high school situation, factors of parental assistance and cooperation affecting the establishment of sons in farming or other occupations, and opportunities for establishment in farming relative to the needs of young men.

Alpha Rho Campus Chapter, Johns Hopkins University, reported current research on four topics in progress at the university. Unfortunately space does not permit publication of details of these reports.—EARLE O. LIGGETT, *District Representative.*

Research in District Seven

Probably the most important work of a semi-research nature in the area of the Seventh District of Phi Delta Kappa is that undertaken by the Southern Association of Colleges and Secondary Schools for the improvement of higher education in the South, especially in respect to liberal arts colleges. A work conference met at the University of the South, during the month of July, and undertook to raise and study problems pertinent to this improvement.

Five committtees were set up which studied and discussed the following areas: I, The Importance of Instruction; II, Curriculum Problems; III, Evaluation; IV, Guidance; V, Teacher Education and Certification.

It was the feeling of the conference that its main problem was to implement its work in such manner as to cause every southern college in the area to study these or similar problems with the end in view of improving its own work. In general terms it was recognized that problems could not be imposed on individual colleges, but that these institutions must study themselves and through faculty groups or committees work toward improvement. The conference at Sewanee hoped to start a movement which would cover the eleven states of the Southern Association jurisdiction.

During the present winter, work in the various colleges will be watched and checked by a central committee whose business it will be to give encouragement and guidance, and to arrange a similar conference at the University of the South next summer.

It is believed that organizations in the various colleges, such as Phi Delta Kappa, Kappa Delta Pi, the A.A.U.W., and the A.A.U.P., may become interested in the movement.

Recently the Alabama Association of Colleges at a called meeting in Birmingham sponsored a program dealing with the activities of the Sewanee Conference. Other state associations are becoming interested. It is quite probable that a real movement looking toward the improvement of higher education in a large area has been launched which will require considerable research and the utilization of work-shop techniques.—GLADSTONE H. YEUELL, *District Representative.*

Keeping Abreast of the Times

Personal and Professional

(Material for this section of THE PHI DELTA KAPPAN is obtained from several hundred magazines, newspapers, press bureau releases, chapter news letters and private letters. While the editors check as many of these items as possible, it seems inevitable that some errors will occur. We will appreciate receiving notice of any such errors.—P. M. C.)

J. D. BARNARD* has returned to the faculty of the Colorado State College of Education, Greeley, following a year's work with the Michigan Community Health Area.

K. D. BENNE,* formerly an associate at Teachers College, Columbia University, is now on the faculty of the college of education, University of Illinois, Champaign.

A. WITT BLAIR* is now assistant professor of elementary education, Texas Christian University, Fort Worth.

WILEY G. BROOKS,* formerly president, Illinois Wesleyan University, Bloomington, is now president of Nebraska State Teachers College, Chadron, succeeding E. L. ROUSE.*

ALFRED J. CARDALL, formerly a member of the Guidance and Psychology Department of Boston University, has joined the staff of Science Research Associates, Chicago, as director of the Test Service and Counseling Division.

H. V. CHURCH, secretary of the National Honor Society and HERBERT B. MULFORD, chairman of the Educational Advisory Committee, Illinois Association of School Boards, were awarded alumni citations for public service by the University of Chicago department of education at the Fiftieth Anniversary celebration.

JAMES E. CUTLER, formerly dean of the school of applied social sciences, Western Reserve University, Cleveland, Ohio, has retired.

CLARENCE E. DEAKINS* has been appointed associate professor of psychology and assistant director of admissions at Knox College, Galesburg, Ill.

EARL S. DICKERSON,* assistant professor of commerce, Eastern Illinois State Teachers College, Charleston, has been awarded a doctor's degree in business education by New York University.

THEODORE A. DISTLER,* dean, Lafayette College, Easton, Pa., has succeeded the late JOHN A. SCHAEFFER as president of Franklin and Marshall College, Lancaster, Pa.

E. C. DODD,* newly appointed college examiner and director of curriculum in the Texas State Department of Education, was formerly superintendent of the Brownsville, Tex., public schools. His successor there is BEN L. BRITE, formerly dean of the Brownsville Junior College and principal of the Brownsville High School.

ARTHUR DONDINEAU,* supervising director of special education and special clinics, has been promoted to the position of assistant superintendent of Detroit Public Schools.

The new principal of the Haddon Heights, N. J., school is JOHN E. DUGAN,* formerly principal of the Princeton, N. J., high school.

ELVIN S. EYSTER* has returned to Indiana University this year as acting professor and associate director of the personnel and placement bureau in the school of business.

GLENN FEATHERSTON,* formerly director, division of research, statistics, and information, Missouri State Department of Education, Jefferson City, has been appointed assistant state superintendent of schools.

ELI C. FOSTER,* formerly principal of Central High School, Tulsa, Okla., and assistant superintendent of schools in charge of secondary education, is now professor of education at Oklahoma A. & M. College, Stillwater. His successor is MEREDITH M. BLACK.

O. I. FREDERICK* has been appointed to the faculty of Western Michigan College of Education, Kalamazoo. He was formerly at work on curriculum development in Battle Creek and Lansing, Mich.

HERMAN FRICK,* superintendent of the training school, Winthrop College, Rock Hill, S. C., and director of teacher training, was formerly on the staff of the University of South Carolina High School.

EDWARD D. GIBBS* is now assistant professor of education, College of Puget Sound, Tacoma, Wash.

ROBERT S. GILCHRIST,* new director of Ohio State University's University School, was formerly chief of the educational relations section of the division of student work in the N.Y.A.

RAWL I. GRIGSBY is the newly appointed educational and technical consultant in curriculum problems, U. S. Office of Education.

* Names marked with an asterisk are those of members of Phi Delta Kappa.

ARTHUR M. HARDING, who became president of the University of Arkansas on July 1, has been director of the general extension service of the university for the past twenty-two years.

CLAUDE HARRIS will substitute for F. F. GAITHER,* assistant professor of education, University of Oklahoma, Norman, while Mr. Gaither is on sabbatical leave.

BYRON W. HARTLEY,* dean of Green Mountain Junior College, Poultney, Vt., has been elected superintendent of the Dover, Del., public schools.

WILLIAM H. HARTLEY* is now on the faculty of the New York State College for Teachers at Albany.

LEO M. HAUPTMAN* has been appointed school psychologist and director of secondary education in La Porte, Ind. He was formerly on the staff of the University of Nebraska, Lincoln.

A. W. HEINMILLER, newly named assistant superintendent of District of Columbia schools in charge of the school budget, was formerly director of procurement in the Office of Business Affairs.

LEO G. HERDEG,* formerly district superintendent of schools, Chicago, has succeeded MINNIE FALLON, retired, as assistant superintendent of schools.

JOHN H. HERRICK,* formerly director of research at Shaker Heights, Ohio, is now director of research with the Cincinnati, Ohio, public schools.

KENNETH HOLLAND, of the staff of the American Youth Commission, is now director of the section on education of the Office of the Coordinator of Inter-American Affairs.

JOHN A. HOLLINGER* has retired from his position as director of the department of science and visual instruction of the Pittsburgh public schools.

ALBION H. HORRALL,* superintendent of San Mateo, Calif., public schools, was formerly assistant superintendent in charge of elementary schools, San Jose, Calif. His successor, RALPH R. FIELDS, has been in charge of teacher training at Stanford University.

OSMAN R. HULL,* has been appointed to act as administrative consultant to the board of education and superintendent of Compton Junior College and High School District, Compton, Calif., for the current year.

OLIVER S. IKENBERRY* has recently been appointed dean of the college and professor of education at Salem College, Salem, W. Va.

WALTER A. JESSUP,* president of the Carnegie Foundation for the Advancement of Teaching, has succeeded FREDERICK P. KEPPEL as president of the Carnegie Corporation of New York. He has resigned as chairman of the Trustees of the Society for the Advancement of Education, Inc., which publishes *School and Society,* being succeeded by FRANK P. GRAVES,* formerly commissioner of education of the state of New York, but will remain as a trustee.

ANTHONY E. KARNES,* formerly commissioner of education, Juneau, Alaska, is now district superintendent at Maricopa, Kern County, Calif.

DONALD E. KITCH* has been appointed coordinator of secondary curriculum for Contra Costa County, Calif., schools.

MAX R. KLEIN,* recently appointed director of the educational Museum in the Cleveland, Ohio, schools, was formerly a teacher in national defense training courses at West Technical High School, Cleveland.

H. R. LISSACK,* formerly superintendent of schools at Rochelle, Ill., is now associated with the editorial staff of the Encyclopaedia Britannica as educational director.

CAPT. J. R. LIVENGOOD,* Fort Ord, Calif., formerly of the Los Angeles secondary schools, is Post Plans and Training Officer in charge of all the educational activities, such as: Officer Candidate Schools for enlisted men, Extension Work for Reserve Officers, and other specialist training.

J. O. LOFTIN,* formerly president of Texas College of Arts and Industries, has succeeded J. E. NELSON as president of San Antonio Junior College, San Antonio, Texas.

J. A. MCCALL,* formerly principal of Gregory School, Champaign, Ill., is now field representative for the Illinois Credit Union League.

CHARLES C. MCCRACKEN, newly appointed lecturer in education and director of the Educational Service Bureau, School of Education, University of Pennsylvania, Philadelphia, has been for the past six years director of the College Department of the Presbyterian Board of Christian Education.

ROGER P. MCCUTCHEON, dean, Graduate School, Tulane University, New Orleans, La., has been appointed director of the division for teachers and director of the summer school, succeeding J. ADAIR LYON, retired.

LEE J. MCEWAN, formerly assistant superintendent, Binghamton, N. Y., schools, has succeeded DANIEL J. KELLY* as superintendent.

HERBERT MARTIN, head, department of philosophy, State University of Iowa, has retired at the age of seventy but will remain at the University on a part-

time basis. EVERETT W. HALL, associate professor of philosophy, Stanford University, succeeds him.

JAMES A. MICHENER,* Colorado State College of Education, Greeley, is now employed in an editorial capacity with the Macmillan Company.

WARD I. MILLER,* formerly superintendent of Fort Collins, Colo., schools, is now superintendent of School District No. 1 of the town of Eastchester, Tuckahoe, N. Y.

MERTON D. MUNN,* dean of Whitworth College, Spokane, Wash., was formerly on the faculty of State Teachers College, Livingston, Ala.

WILLIAM F. O'DONNELL, newly-elected president of Eastern Kentucky State Teachers College, Richmond, was formerly superintendent of schools in Richmond.

THOMAS C. PRINCE, supervisor of Jacksonville, Fla., schools, has been elected as superintendent of Knoxville, Tenn., schools, succeeding HARRY H. CLARK, who is now professor of extension, University of South Carolina, Columbia.

WILLIS E. PRATT,* president of Mansfield State Teachers College, Mansfield, Pa., was formerly superintendent of Erie County, Pa., schools.

H. D. RICHARDSON,* director of graduate study at the Arizona State Teachers College, Tempe, has also been appointed registrar of the college.

W. T. ROWLAND, JR.,* superintendent of Lexington, Ky., schools, was formerly assistant superintendent, Louisville, Ky., schools.

REYNOLDS C. SEITZ,* has resigned as assistant to the superintendent of schools, St. Louis, Mo., to become a review attorney for the National Labor Relations Board. Previously, he was a professor of law at Creighton University, Omaha, Nebr.

HERMAN L. SHIBLER,* principal of Central School, Euclid, Ohio, for the past five years, became superintendent of schools, Birmingham, Mich., on December 1. His successor in Ohio is W. G. FORDYCE,* formerly dean of boys.

ISAAC N. THUT,* Ohio State University, is now assistant professor of education at the University of New Hampshire, Durham.

HERMAN TIEDMAN,* is supervisor of student teaching and is instructing in the social studies and directing the remedial reading program at the Eau Claire State Teachers College, Eau Claire, Wis.

T. A. WEIR* is now an instructor in driver education and training at Soldan High School, St. Louis, Mo.

Recent Deaths

LEO BAISDEN,* Deputy Superintendent of Stockton Schools, Stockton, California, was killed in an automobile crash, October 29. Previously he had been assistant superintendent of schools, Sacramento, Calif.

ENOCH A. BRYAN, president emeritus of Washington State College, Pullman, died on November 6 at the age of eighty-six. He served as president from 1893 until 1916; as commissioner of education of Idaho from 1917 to 1932; and later as research professor in economics at the college.

W. FOWLER BUCKE, who has been head of the department of education and director of teacher training at Geneseo, N. Y., Normal School for the past seventeen years, died recently.

CHARLES M. ELLIOTT, head of the special education department of Michigan State Normal College, Ypsilanti, died November 22. He had been connected with the college since 1908 when he entered it as a student.

R. B. FISHER,* superintendent of schools, Corpus Christi, Texas, and president of the Corpus Christi Junior College, died on October 15.

RICHARD C. FOSTER, president, University of Alabama, died on November 19 at the age of forty-six years. He was also vice-president of the Southern University Conference.

KURT KOFFA, professor of psychology, at Smith College, Northhampton, Mass., died on November 22. He was an authority on the Gestalt theory.

HERBERT A. MCKEAN,* principal of the Edison School, Tacoma, Wash., died on September 29, 1941.

PETER SANDIFORD,* college of education, University of Toronto, died recently.

ROBERT W. SELVIDGE,* professor of industrial education, University of Missouri, Columbia, and author of textbooks, died on November 16, 1941, at the age of 68. He had held various administrative posts in the department of mechanical engineering and the college of engineering at the University of Missouri and had been an industrial training consultant for the United States Army during the World War and a consulting engineer.

RAY P. SNYDER,* director, school administrative services division, New York State Education Department, died on October 16.

THOMAS H. TALIAFERRO, who retired as dean of the faculty, University of Maryland last year, died on September 25. He was the first president of the University of Florida, Tallahassee.

Meeting and Conferences

DECEMBER 27-28—American Association of University Professors. Stevens Hotel, Chicago.

DECEMBER 27-29—American Sociological Society. Roosevelt Hotel, New York City.

DECEMBER 27-30—American Economic Association. Commodore Hotel, New York City.

DECEMBER 27-31—American Political Science Association. Hotel Pennsylvania, New York City.

DECEMBER 28-29—American Association of Teachers of French. Hotel Lincoln, Indianapolis.

DECEMBER 28-29—National Association of Biology Teachers. Dallas, Tex.

DECEMBER 28-29—N.E.A. Department of Classroom Teachers, Southeastern Region; University of Miami, Miami Biltmore Hotel, Coral Gables, Fla.

DECEMBER 28-31—American Library Association Midwinter Conference. Drake Hotel, Chicago.

DECEMBER 29-30—College Physical Education Association. Book-Cadillac, Detroit.

DECEMBER 29-31—American Mathematical Society. Lehigh University, Bethlehem, Pa.; also Mathematical Association of America.

DECEMBER 29-31—American Philosophical Association; *Eastern Division.* Vassar College, Poughkeepsie, N. Y.; *Pacific Division.* Mills College, Oakland, Calif.

DECEMBER 29-31—Association of American Geographers. Barbizon-Plaza, New York City.

DECEMBER 29-31—Modern Language Association of America. Claypool Hotel, Indianapolis.

DECEMBER 29-31—National Business Teachers Association. Sherman Hotel, Chicago.

DECEMBER 29-31—National Collegiate Athletic Association. Book-Cadillac, Detroit.

DECEMBER 29-JANUARY 2—American Association for the Advancement of Science. Adolphus and Baker Hotels, Dallas, Tex.

DECEMBER 30-31—American Student Health Association. New Yorker, New York City.

DECEMBER 31—JANUARY 1, 1942—National Council of Teachers of Mathematics. Lehigh University, Bethlehem, Pa.

JANUARY 8-9—Association of American Colleges. Hotel Cleveland, Cleveland, Ohio.

JANUARY 24-26—Child Labor Day, sponsored by National Child Labor Committee, 419 Fourth Ave., New York.

JANUARY 30-31—American Council of Learned Societies, Hotel Washington, Washington, D. C.

FEBRUARY—Inter-American Bibliographical and Library Association. Washington, D. C.

FEBRUARY 8-15—Negro History Week. Sponsored by the Association for the Study of Negro Life and History, Inc., Carter G. Woodson, director.

FEBRUARY 18-20—American College Personnel Association; also National Vocational Guidance Association. Fairmont and Mark Hopkins Hotels, San Francisco.

FEBRUARY 19-21—International Council for Exceptional Children. Hotel Schroeder, Milwaukee, Wis. Theme: Democracy's Defense Program for Exceptional Children.

FEBRUARY 20-21—American Association of Teachers Colleges. St. Francis Hotel, San Francisco.

FEBRUARY 20-21—National Advisory Council on School Building Problems. St. Francis Hotel, San Francisco.

FEBRUARY 21-25—National Association of Secondary School Principals of the N.E.A. Hotel St. Francis, San Francisco.

FEBRUARY 21-26—American Association of School Administrators. Civic Auditorium, San Francisco.

FEBRUARY 21-26—American Educational Research Association; meeting with the American Association of School Administrators. San Francisco.

FEBRUARY 23-25—Department of Supervisors and Directors of Instruction, N.E.A. Hotel St. Francis, San Francisco.

FEBRUARY 26-28—American Association of Junior Colleges. Hotel Ambassador, Los Angeles, Calif.

MARCH—U. S. Office of Education, 75th Anniversary.

APRIL 6-11—Association for Childhood Education. Buffalo, N. Y.

APRIL 8-11—Western Arts Association. Hotels Phillips and Muehlebach, Kansas City, Mo.

APRIL 14-16—American Association of Collegiate Registrars. Drake Hotel, Chicago.

APRIL 15-18—American Association for Health, Physical Education and Recreation. Hotel Roosevelt, New Orleans.

APRIL 17-18—Conference on Reading Instruction, Pennsylvania State College, School of Education, State College, Pa. Theme: Differentiated Reading Instruction in the Classroom.

APRIL 23-25—American Philosophical Association; Western Division. University of Wisconsin, Madison.

MAY 1-2—American Council on Education. Mayflower Hotel, Washington, D. C.

MAY 2-9—Eighth Pan-American Child Congress, Washington, D. C., sponsored by U. S. Department of State.

MAY 4-6—Institute for Education by Radio. Deshler-Wallick, Columbus, Ohio.

MAY 17—Citizenship Recognition Day.

MAY 18-20—National University Extension Association. Nittany Lion Inn, State College, Pa.

JUNE 22-27—American Library Association; 64th annual conference. Auditorium, Milwaukee, Wisc.

JUNE 28-JULY 2—National Education Association. Denver.

JULY 8-10—World Federation of Education Associations. Montreal, Canada.

Colleges and Universities

"THE MESSAGE I would emphasize to you this year is that America will always need men and women with college training. Government and industry alike need skilled technicians today. Later, we shall need men and women of broad understanding and special aptitudes to serve as leaders of the generation which must manage the post-war world. We must, therefore, re-double our efforts during these critical times to make our schools render ever more efficient service in support of our cherished democratic institutions."—FRANKLIN D. ROOSEVELT.

A WIDESPREAD comprehensive educational program for men in the armed forces is now in process of development. An Army Institute will be established soon. Courses provided by the War Department will be available to men in the service for $2 per course. Courses offered by college and university extension divisions may be elected and the Army will pay fifty per cent of the cost of fees and required texts up to a maximum of $20 per course per man.

It is planned to expand the supply of educational films, now provided on an experimental basis, throughout the camps.

In a *Guide for Regimental Recreation Officers,* recently issued by the Morale Branch of the War Department to assist commanding officers "in matters pertaining to recreation and welfare," suggested educational activities include: class instruction at various levels, lectures, discussion groups, debates, exhibits, educational tours, hobby groups, and work shops as well as educational guidance and counseling. It is proposed that many activities be conducted by utilizing the services of enlisted men and officers, and cooperation with educational institutions in adjacent communities is urged. According to the November 28 issue of *Higher Education and National Defense,* a detailed "Manual of Educational Activities" is also in preparation. The Carnegie Corporation has given $100,000 to be spent under direction of the Joint Army and Navy Committee through a Committee of Trustees on Defense Welfare and Recreation Experimental Programs.

THE EIGHTH VOLUME of *Doctoral Dissertations Accepted by American Universities, 1940-1941,* edited by Edward A. Henry (New York: H. W. Wilson Co., 1941. $2.50) has just been issued. According to it a total of some 3,526 dissertations were accepted by 90 American colleges and universities last year, setting an all-time high. The dissertations represent research in seven main subjects: philosophy, religion, physical sciences, earth sciences, biological sciences, social sciences, and literature and art, although the majority were in the fields of the three sciences.

Introductory tables deal with the following: the number of doctorates during the past ten years in the various subjects; availability of doctoral dissertations in the various universities issuing them; and the distribution of 1940-1941 doctorates by university and by subject.

THE NEW professional degree program of the College of Education of the University of Illinois is in full operation. Thirty-eight school teachers, supervisors and administrators who had completed one year or more of graduate study and at least two years of successful experience were admitted to the program in the 1941 summer session. Two additional applicants were admitted in the fall of 1941. Candidates were selected on the basis of scores on a battery of examinations, personnel data, scholastic records and interviews.

Successful applicants who have the minimum qualification of one year of graduate study are admitted to candidacy for the degree of Master of Education which requires one additional year. Residence both for this degree and for the degree of Doctor of Education, which requires a third year, may be earned through attendance on summer sessions. The professional progress of the student determines when he is eligible to receive his degree. The number of students admitted will be so limited as to insure a high quality of work. Applications for admission in the summer of 1942 should be filed before February 1, if possible.

THE CONFERENCE OF DEANS of Southern Graduate Schools will soon sponsor a survey of graduate work in the south under a grant from the General Education Board, effective January 1. A. B. Bond, assistant to the dean of Louisiana State University's graduate school since 1936, who recently completed in collaboration with the late dean, Charles W. Pipkin, "A Preliminary Survey of Graduate Work in the South," will be coordinating officer for the survey. Roger McCutcheon, dean of the graduate school, Tulane University, is president of the conference. Other members of the council are the following deans of universities: E. W. Shuler, Southern Methodist University; Herbert Drennan, Mississippi State College; Goodrich C. White, Emory University; and W. W. Pierson, North Carolina University.

THE SMALL SCHOOL is the theme of a series of lectures being established at the University of Nebraska under the sponsorship of the Phi Delta Kappa chapter there. R. V. Hunkins, superintendent at Lead, South Dakota, and author of *The Superintendent at War in the Small School,* gave the first lecture of the series on October 10 on the subject, "The Small School and Its Problems."

MORE ALUMNI of the University of California are pursuing education as their life work than are engaged in any other endeavor, according to Robert Sibley, managing director of the California Alumni Association. These statistics were obtained through a survey of the association membership involving the sending of a questionnaire to every tenth name on the list. Of alumni replying, 14.4 per cent said they were engaged in education; 12.2 per cent in science; 11.4 per cent in medicine; and 9.5 per cent in finance. Lower percentages were engaged in other occupations.

THE DOCTORAL DEGREE in education will be offered for the first time on the Los Angeles campus of the University of California during the coming year, according to Edwin A. Lee, dean of the School of Education. Added faculty members and an improved curriculum make it possible to grant the new degree.

A SURVEY COMMITTEE of the College of Education, University of Maryland, under the chairmanship of Arnold E. Joyal, professor of educational administration, has just published a report, *A Program of Reorganization for the Public Secondary Schools of Prince George's County, Maryland.* The survey sets forth objectively the facts with respect to secondary education in Prince George's County, particularly with reference to the possibility of reorganizing the schools in terms of a twelve-year education program. A long-time program of reorganization is proposed.

The Junior College

A comprehensive and authoritative picture of junior college education in the six hundred junior colleges of the country is provided in three terminal education monographs which have recently been issued under sponsorship of the Commission on Junior College Terminal Education by the American Association of Junior Colleges, Washington, D. C. They are based on a one-year period of exploratory study (1940) which was financed by a special grant from The General Education Board to the Commission. The research will be continued during the next four years on funds made available by the board and cooperating junior colleges.

The Literature of Junior College Terminal Education is reviewed by Lois E. Engleman, Librarian of Frances Shimer Junior College; and Walter C. Eells, Executive Secretary of the American Association of Junior Colleges, in the first monograph. This fully annotated and classified bibliography of more than 1,500 titles includes significant materials published from 1900 up to August 1, 1940, with the addition of supplementary items published to January 1, 1941.

Present Status of Junior College Terminal Education, monograph No. 2, prepared by Walter C. Eells, with the cooperation of many junior college and educational association officials, etc., presents a general summary of a nation-wide investigation of the status of terminal education in more than four hundred junior colleges all over the country, with suggestions of major problems deserving further study and analysis. An account of the historical development of terminal education is followed by statistics on terminal curricula and enrollments. Other chapters present analyses of vocational and general terminal curricula, instructional staff, equipment, libraries, and personnel and guidance organizations. There is also a discussion of the relationship between the community and terminal education. The book concludes with an attractive pictorial supplement, "Aims of Terminal Education as Illustrated by Pictures of Typical Activity."

The third monograph, *Why Junior College Terminal Education?* was prepared by Walter C. Eells and includes chapters by various subject experts. It consists of analysis of twenty-one vital economic, social, and educational factors related to junior college terminal education. The opinions of more than 1,900 educational, labor, and business leaders on ten important questions related to junior college terminal education are presented. The replies to the tenth question are statements of their general judgment of the significance of the junior college movement, particularly with reference to its terminal aspect.

Other chapters present principles for revision of junior college curricula, formulated by a committee of California educators; The Philosophy of Semi-Professional Education, by the retired head of the Los Angeles City College; New Aims for Junior Colleges as seen by a professor of journalism at Iowa; recommendations for The Next Twenty Years in junior college terminal education by the president of the American Council on Education; and short quotations from a large number of pertinent statements made by different educational leaders concerning the need for terminal education, etc.

Included in the appendix is a twenty-page booklet *Why Junior College Education? Forty Points of View,* available in reprint form for the use of faculty discussion groups, university classes in junior college organization, or summer workshops.

Public Schools

PAUL V. MCNUTT, federal security administrator, is asking teachers, educational leaders, and citizen volunteers to participate in national defense through cooperation with the school and college civilian morale service to be developed by the U. S. Office of Education. Copies of a manual on "How to Participate" are being mailed out to educational leaders and civic groups. It is suggested that "Freedom's Forums" be conducted in schools, colleges, union halls, churches, women's and service clubs, libraries, and in farm organization meetings throughout the nation.

THE U. S. OFFICE OF EDUCATION has produced a series of motion picture films dealing with mechanical skills and knowledge, especially designed to be used by vocational teachers and shop instructors. These films will assist potential and employed defense workers more rapidly to learn and more thoroughly to comprehend the instruction being given them in vocational schools. These motion pictures will soon be made available on a large scale through a contract between the Office of Education and Castle Films, Inc. A library of fifty reels has been planned to cover intensively all phases of machine shop practice in precision metal working. Films were produced by several motion picture companies, following a pattern laid down by the Office of Education. State committees coordinated the material to be used in the film scripts. All films were made from the standpoint of the machine itself rather than of the operator as such.

REVIEWS of three hundred fifty-nine important books in research and statistical methodology and related fields of science and pure science are conveniently and permanently collected in *The Second Yearbook of Research and Statistical Methodology,* edited by Oscar K. Buros (Highland Park, N. J.: The Gryphon Press, 1941. Pp. xxii + 383. $5). The yearbook includes reviews of 234 books listed for the first time, in addition to new reviews of books previously reviewed in *Educational, Psychological, and Personality Tests of 1936,* in *Research and Statistical Methodology Books and Reviews of 1933-1938,* and in *The 1938 Mental Measurements Yearbook.* The present expanded compilation was published to provide easy access to critical reviews of important research material in a field characterized by tremendous recent changes, of which too many textbook authors, teachers, and reviewers are ignorant. Items in the yearbook are arranged alphabetically by name of the author of the book, followed by reviews arranged alphabetically according to the name of the journals in which they appear. Valuable supplementary features are a list of cooperating journals, a periodical directory and index, a publishers' directory and index, an index of titles, an index of names (of abstractors), and a classified index to books.

EXCELLENT suggestions on *How to Locate Educational Information and Data* are given in the new edition of Carter Alexander's book of this title. "The present volume [2nd ed., greatly revised; New York; Teachers College Columbia University, 1941. Pp. xiv + 442. $4] and the accompanying *Experiences* cover several areas not treated in the first edition and introduce fast and accurate techniques and new and improved library aids which represent recent development in the field of library searching."

The book opens with a consideration of the educator's need for library materials, following which the author logically discusses the library knowledge and skills needed by the educator and their acquisition, practical suggestions on library reading and note taking in connection with library materials, location of educational researches and recognition of educational problems upon which further research is needed. Preparation of bibliographies and evaluation of books and other references, as well as library procedures and resources, are comprehensively treated. In chapter thirty, Alexander presents a general "Technique of Library Searching," applicable to many problems of library searching, which is in itself a kind of summary of the book.

Alexander Library Experiences (New York: Teachers College Columbia University, 1941. Pp. 158. $1.50.) is a work book prepared to accompany the text discussed above.

Because of the breadth of subject matter and excellence of organization, the two books should be indispensable to every educator who is undertaking research as well as to educators in any capacity.

THE WORK of the Committee on Awards of the American Educational Research Association as reflected in its fourth report is the subject of an article by Walter S. Monroe in the November 29th issue of *School and Society*. Bases on which the committee chooses its annual list of "outstanding researches" and a list of the researches so recognized by it in 1938, 1939, 1940, and 1941, are presented. Monroe also gives data concerning the authors of these researches, their institutional connections, financing, etc. Most of the outstanding researches are developed according to the historical or controlled experimentation methods. Monroe calls special attention to the fact that the historical method, "a classification which includes less than 10 per cent of the research of the period (1933-39) furnished slightly more than 25 per cent of the 'outstanding contributions.'"

The selections receiving awards in 1941 fall within the following subject areas: Mental and physical development, 1; Psychology of Learning and General Methods of Teaching, 1; History of Education and Comparative Education, 4; Mental Hygiene and Adjustment, 1; Educational Sociology, 1; The Curriculum, 1; School Organization, 1; Special Methods and Psychology of Elementary School Subjects, 1; Psychology and Methods in the High School and College, 3; Finance and Business Administration, 2; Psychological Tests and Their Uses, 3. No selections were made from the fields of Pupil Personnel, Guidance and Counseling, Teacher Personnel, The School Plant and Equipment, and Educational Tests and Their Uses. Monroe also comments on the number of instances in which the ratings of cooperating judges have ranged from A (a research of distinction) to D (a research not worthy of selection). He suggests that perhaps members of the AERA and other research workers are, in general, "not sensitive to fundamental faults of data and of research techniques or that they are prone to make evaluations without a critical examination of the data and techniques. On the other hand, many appear to be strongly influenced in their judgment by what they assume to be the practical value of the study or by other qualities that are not crucial with reference to the quality of the research."

VALUABLE recommendations concerning methods of using educational motion pictures are contained in a doctoral dissertation prepared by Abraham Krasker in the Boston University Graduate School, department of education.

The material of instruction pertained to General Science in the eighth and ninth grades, and groups of approximately eight hundred students were equated socially, educationally, and mentally for purposes of comparison. The study was made to investigate the relative effectiveness of the Intermittent Method of film technique with regular classroom groups as compared with auditorium groups; and the comparative efficiency of film lessons with the Non-preparation Method and the Preparation Method. During the three-year experimental period, eight films were used. Objective tests, based on the films, were produced and were validated by statistical procedures on the basis of the experimental evidence.

Krasker presents the following conclusions: (1) The same methodology produced a higher degree of mastery with the small or classroom group than with the auditorium group. (2) The Pre-test results show the necessity of a consideration of what pupils know relative to an instructional unit previous to the instructional period if one wishes to measure the actual amount of learning due to any one methodology. (3) The educational motion picture proved to be an effective educational device for increasing factual learning. (4) The higher ability group achieved the greatest scores in the three steps of the instructional method. In some instances the low ability group gained a higher mean per cent than either of the other higher ability groups. (5) In no instance did the method of merely showing a film give a satisfactory learning result sufficient to warrant stopping of the instructional period at this step. (6) In all instances in this experiment the amount of time spent in step three of the instructional plan which directed the students' study of the film with directing questions brought significant learning results.

It should be noted that the subjects studied were problem and appreciation subjects, while the testing done was factual or drill type testing.

A STUDY of *High School Boys Electing Industrial Arts*, made by John N. Willmott, supervisor of industrial and fine arts, Garden City Schools, Garden City, N. Y., has just been published by the Bureau of Publications, Teachers College, Columbia University. This doctoral study is based on the hypothesis that the boys who elect industrial arts in high school are not a true sample of the total senior high school population of boys but differ from the group who do not elect industrial arts.

Two groups of boys from fourteen general high schools in Nassau County, New York, who elected and who did not elect industrial arts were compared as to chronological age, intelligence, academic achievement, interests, socio-economic status, educational ambitions, and vocational ambitions.

Data from the study indicate that the group which elects industrial arts consists in large part of: (1) boys whose backgrounds are more often those of the lower economic strata; (2) boys whose ages average about a half year more than those of the non-industrial

arts group; (3) boys who have a wide range of intelligence, but whose average intelligence is somewhat below that of the other group; (4) boys whose academic achievement is also below that which their intelligence would lead one to expect; (5) boys whose interests are predominantly technical in nature; (6) boys who are planning for an occupation requiring only average or low average intelligence and academic education; (7) boys who plan to finish high school, but not to go to college. The findings indicate desirable changes in school policy and organization, as well as additional research which is needed.

THE identification and teaching of basic methods of research are discussed in an interesting article, "Methods, Types or Techniques of Educational Research," by Frederick L. Whitney, Colorado State College of Education, which appears in the October 4 issue of *School and Society*. Professor Whitney tabulates, in rank order of frequency of mention, the thirty-four words used for the kinds of research advocated in two sources: a group of fifteen college research manuals published 1919-1938; and A. S. Barr's symposium of 1931, in which seventeen educational research men took part, which was published in the Journal of Educational Research. The words historical, experimental, philosophical, and descriptive were used most frequently in the symposium, while experimental, historical, descriptive, and philosophical had top rank in five of the manuals published between 1932-1938. The manuals published from 1919 to 1931 emphasized experimental, historical survey, case-study, and questionnaire.

Whitney comments that this list includes many activities that deal with techniques and that the words stem from diverse bases of classification; moreover, many of them are not basic methods of research.

Practically speaking, the advisor of beginners in research might suggest that a good textbook should be organized in terms of important types of reflective activities explained and illustrated, rather than trying to include concepts only of so-called logically basic methods of research.

A course for beginning graduate students should not attempt to be a formal course in logic. "It should provide vicarious experiences in research thinking through critical analysis of many published project reports. It should give actual practical exercise in setting up trial studies in the solution of simple specific problems."

A SERIOUS SHORTAGE of qualified teachers is at hand, according to the first report of the NEA's National Commission for the Defense of Democracy through Education, under the chairmanship of Alonzo F. Myers, New York University.

The report states that the shortage has already reached the rural districts, and very probably will soon reach the large cities. A definite shortage in the field of vocational education has already been felt in the cities.

Many communities are already reducing standards for teachers. "Between 5,000 and 10,000 emergency certificates will be granted to teachers during the coming year, permitting them to enter the profession at lowered standards." The Commission suggests that communities should increase teaching salaries from ten to twenty-five per cent, with an average countrywide increase of fifteen per cent. In this connection, it is interesting to note that, according to newspaper accounts, Waukegan, Illinois, Township high school teachers will be paid a bonus of $100 and maintenance workers a bonus of $50 this year, because of the rising cost of living.

Now, strangely and regrettably, the ablest defense of education comes from London—"a civilization that is not being destroyed but recreated." The reporter's technique is to ask the same question of as many sorts of people as she* can and then sum up the answers "On the record."

"What sort of person stands up in the blitz?" she asked. "Who thinks of the other fellow first?" . . .

The replies have been unanimous—the free professions. Curiously, perhaps astonishingly, she states: doctors, lawyers, school teachers, pastors, engineers, dentists, journalists, writers, artists and actors. . . .

The supers are boys and girls earning their living by their brains. Why? These vital reasons are given:

They are accustomed to objective thinking. Their minds look out, not in. They are accustomed to intellectual effort. Education has induced certain standards of behavior. They belong to an occupation in which the individual has to think for himself. They have an intellectual curiosity which makes even the most terrible experience interesting.

At any rate, when others run to shelter the intellectuals run out to see what they can do.

This war is blasting windows into minds as well as glass into streets. It is causing things to be done that the intellegence of the few long ago recommended: conjoining education of children with their care and feeding; forcing dietary habits; eliminating waste; making the scientist into a priest, and the priest into a scientist, and ennobling democracy.

And with these changes, the stock of the intellectual is going up. This perhaps augurs a happier, more intellectual time to come.—GRACE M. TURNER, *in the Los Angeles School Journal, October 6, 1941.*

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*Dorothy Thompson, as quoted in the Los Angeles *Daily News*.

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